

HMC-MD777

SERVICE MANUAL

E Model



Ver. 1.2 2006.09



HMC-MD777 is the CD player and MD Deck section in DHC-MD777.

U.S. and foreign patents licensed form Dolby Laboratories Licensing Corporation.

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM53-K1BD33
	Base Unit Name	BU-K1BD33
	Optical Pick-up Name	KSM-213BFN
MD Section	Model Name Using Similar Mechanism	HCD-MD515
	MD Mechanism Type	MDM-C1F
	Base Unit Name	MBU-C1F
	Optical Pick-up Name	KMS-260B

SPECIFICATIONS

CD player section

System	Compact disc and digital audio system
Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max. $44.6 \mu\text{W}^*$ * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Frequency response	2 Hz to 20 kHz

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max. $44.6 \mu\text{W}^*$ * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Inputs

OPTICAL IN (square optical connector jack):	voltage 250 mV, impedance 47 kilohms
MD IN (phono jacks):	voltage 250 mV, impedance 47 kilohms
MD WALKMAN LINK IN (stereo mini jack):	voltage 150 mV, impedance 15 ohms

Outputs

CD OUT, MD OUT (phono jacks):	voltage 250 mV, impedance 1 kilohm
Recording time	74 minutes max. (using MDW-74)
Sampling frequency	44.1 kHz
Frequency response	5 Hz to 20 kHz
Dimensions (w/h/d) incl. controls	projecting parts and 215 x 220 x 355 mm
Mass	4.6 kg

Design and specifications are subject to change without notice.

CD PLAYER/MINI DISC DECK

SELF-DIAGNOSIS FUNCTION

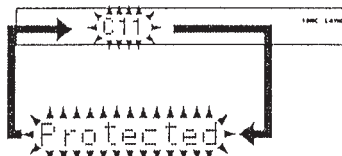
MD SECTION

The self-diagnosis function consists of error codes for customers which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following “Procedure for using the Self-Diagnosis Function (Error History Display Mode)”.

Self-diagnosis Display Function

(If a 3-digit code and a message appear alternately)

This system has a Self-diagnosis display function that alternately displays a 3-digit code and a message to inform you when it is not operating properly. Check the display, then perform the measures in the table below to remedy the problem. Should any problem persist even after two or three times, consult your nearest Sony dealer.



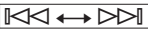




Code/Message	Cause and countermeasure
C11/Protected	The inserted disc is protected against erasure. → Eject the disc, then slide the tab closed to cover the hole (see page 36).
C12/Cannot Copy	You are attempting to play a CD or MD with a format that the system does not support, such as a CD-ROM or MD data. → Insert a CD or MD that is playable.
C13/REC Error	Recording could not be performed properly. → Move the system to a place without vibration, then start recording over from the beginning (see the MD item “The sound skips.” under “Troubleshooting” on page 89). The disc is dirty (e.g., oil film, fingerprints) or scratched, or a non-standard disc is inserted in the deck. → Replace the disc, then start recording over from the beginning.
C13/Read Error	The disc could not be read properly. → Eject the disc, then insert it again.
C14/Toc Error	The disc could not be read properly. → Insert a different disc. → If the entire contents of the disc may be erased, use the All Erase Function to erase all the recorded contents (see page 56).
C41/Cannot Copy	The sound source is a copy of a commercially available music software. → The Serial Copy Management System prevents you from making a digital copy (see page 88).
C71/Check OPT-IN	This may appear momentarily and then disappear depending on the digital broadcast signal being recorded. There is no effect on the recording contents. The optical cable was pulled out or the connected digital component was turned off during digital recording from a component connected to the OPTICAL IN input jack. → Connect the optical cable, or turn on the digital component.

PROCEDURE FOR USING THE SELF-DIAGNOSIS FUNCTION (ERROR HISTORY DISPLAY MODE)

Note: Perform the self-diagnosis function in the “error history display mode” in the test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If you set other modes accidentally, press the **MENU/NO** button to exit the mode.

1. While pressing the both **ENTER/YES** and **□** buttons, turn the power ON.
 (“TEMP CHECK” will be displayed)
2. Press the **MENU/NO** button to display “[CHECK]”.
3. Turn the **◀◀↔▶▶** dial and when “[Service]” is displayed, press the **ENTER/YES** button.
4. Turn the **◀◀↔▶▶** dial to display “ERR DP MODE” (C17).
5. Press the **ENTER/YES** button to sets the error history mode and displays “total rec”.
6. Select the contents to be displayed or executed using the **◀◀↔▶▶** dial.
7. Press the **MD WALKMAN SYNC** button to display or execute the contents selected.
8. Press the **MD WALKMAN SYNC** button again and returns to step 5.
9. When press the **MENU/NO** button to displays “ERROR DP MODE”, exits the error history mode.
10. To exit the test mode, press the **REPEAT** button. The disc is ejected when loaded, and set will be normal mode.

Items of Error History Mode Items and Contents

Display	Details of History
total rec	Displays the recording time. Displayed as “r□□□□□h”. The displayed time is the total time the laser is set to the high power state. This is about 1/4 of the actual recording time. The time is displayed in decimal digits from 0h to 65535h.
total play	Displays the play time. Displayed as “p□□□□□h”. The time displayed is the total actual play time. Pauses are not counted. The time is displayed in decimal digits from 0h to 65535h.
retry err	Displays the total number of retries during recording and number of retry errors during play. Displayed as “r□□ p□□”. “r” indicates the retries during recording while “p” indicates the retry errors during play. The number of retries and retry errors are displayed in hexadecimal digits from 00 to FF.
total err	Displays the total number of errors. Displayed as “total □□”. The number of errors is displayed in hexadecimal digits from 00 to FF.
err history	Displays the 10 latest errors. Displayed as “0□ E@@”. □ indicates the history number. The smaller the number, the more recent is the error. (00 is the latest). @@ indicates the error code. Refer to the following table for the details. The error history can be switched by turning the  dial.
er refresh (*1)	Mode which erases the “retry err”, “total err”, and “err history” histories When returning the unit to the customer after completing repairs, perform this to erase the past error history. After pressing the  button and “er refresh?” is displayed, press the  button to erase the history. “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. <ul style="list-style-type: none"> • The data has been erased. • The mechanism operates normally when recording and play are performed.
tm refresh (*1)	Mode which erases the “total rec” and “total play” histories. These histories serve as approximate indications of when to replace the optical pickup. If the optical pickup has been replaced, perform this operation and erase the history. After pressing the  button and “tm refresh?” is displayed, press the  button to erase the history. “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. <ul style="list-style-type: none"> • The data has been erased. • The mechanism operates normally when recording and play are performed.

(*1) If “er refresh” or “tm refresh” is performed, the error history data are all erased. Only when “OP Replacement” was executed, perform this operation to clear the error history data, otherwise, never perform this operation.

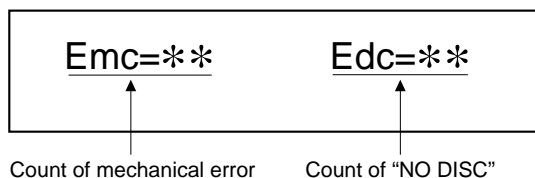
Table of Error Codes

Error Code	Details of Error	Error Code	Details of Error
0□ E00	No error	0□ E05	FOK has deviated
0□ E01	Disc error. PTOC cannot be read (DISC ejected)	0□ E06	Cannot focus (Servo has deviated)
		0□ E07	Recording retry
0□ E02	Disc error. UTOC error (DISC not ejected)	0□ E08	Recording retry error
		0□ E09	Playback retry error (Access error)
0□ E03	Loading error	0□ E0A	Playback retry error
0□ E04	Address cannot be read (Servo has deviated)		

CD SECTION

OPERATING THE DISPLAYED HISTORIES

- Press the **PLAY MODE** and **REPEAT** button simultaneously, and the count of mechanical error and "NO DISC" that optical system judged are dispalyed.

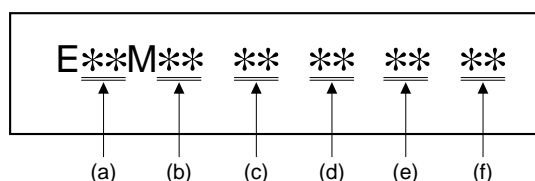


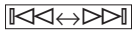
- Under this condition press the buttons in Table 1, and the respective operations are executed as listed below.

Table 1.

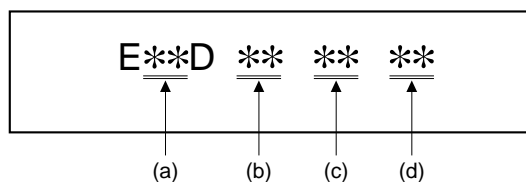
Button	Function
CD 1	Mechanical error cord from latest one to last ten are displayed each time this button is pressed. (*1)
CD 2	The reasons of "NO DISC" from latest one to last ten are displayed each time this button is pressed. (*2)
⊞ (CD1)	Reset the count of mechanical error.
⊞ (CD2)	Reset the count of "NO DISC".

(*1) Mechanical error code



- The number of Mechanical error.
Latest one "00" to last ten "09"
(Turn the  dial and change the error No.)
- "FF" : Mechanical error, when mechanical initialize to completion.
- "1*" } : Mechanical error in the midst of sub tray loading
"2*" } from the stocker.
- "**" : Don't care. (not used in servicing)
- "2*" : Mechanical error in the midst of the stocker up/down.
- "2*" : Mechanical error of the clamper or in the midst of changing the mode.

(*2) NO DISC error code



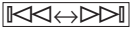
- The number of NO DISC error.
Latest one "00" to last ten "09"
(Turn the  dial and change the error No.)
- "01": Focus error
"02": GFS error
"03": Set up error
- "00": NO DISC error (Did not chucking retry)
"02": NO DISC error (Chucking retry to completion)
- The status, when judged NO DISC error.
"1*" : Stop
"2*" : Set up
"3*" : TOC read
"4*" : Access
"5*" : Play
"6*" : Pause
"7*" : Manual search (Play)
"8*" : Manual search (Pause)

TABLE OF CONTENTS

SELF-DIAGNOSIS FUNCTION	2
1. SERVICING NOTES	6
2. GENERAL	13
3. DISASSEMBLY	15
4. TEST MODE	27
5. ELECTRICAL ADJUSTMENTS	32
6. DIAGRAMS	
6-1. Block Diagram – CD SERVO Section –	41
6-2. Block Diagram – MD SERVO Section (1/2) –	43
6-3. Block Diagram – MD SERVO Section (2/2) –	45
6-4. Block Diagram – DISPLAY/POWER SUPPLY Section –	47
6-5. Note for Printed Wiring Boards and Schematic Diagrams	50
6-6. Printed Wiring Board – BD (CD) Section –	51
6-7. Schematic Diagram – BD (CD) Section –	53
6-8. Printed Wiring Boards – CD MOTOR/SENSOR Section –	55
6-9. Schematic Diagram – CD MOTOR/SENSOR Section –	57
6-10. Schematic Diagram – BD (MD) Section (1/2) –	59
6-11. Schematic Diagram – BD (MD) Section (2/2) –	61
6-12. Printed Wiring Board – BD (MD) Section –	63
6-13. Printed Wiring Boards – MD MOTOR/SENSOR Section –	67
6-14. Schematic Diagram – MD MOTOR/SENSOR Section –	69
6-15. Printed Wiring Board – MICROCOMPUTER Section –	71
6-16. Schematic Diagram – MICROCOMPUTER Section –	73
6-17. Printed Wiring Boards – RELAY Section –	75
6-18. Schematic Diagram – RELAY Section –	77
6-19. Printed Wiring Board – MAIN Section –	79
6-20. Schematic Diagram – MAIN Section –	81
6-21. Printed Wiring Boards – CD JOG/SW Section –	83
6-22. Schematic Diagram – CD JOG/SW Section –	85
6-23. Printed Wiring Board – CD DISPLAY Section –	87
6-24. Schematic Diagram – CD DISPLAY Section –	89
6-25. Printed Wiring Boards – MD JOG/SW Section –	91
6-26. Schematic Diagram – MD JOG/SW Section –	93
6-27. Printed Wiring Board – MD DISPLAY Section –	95
6-28. Schematic Diagram – MD DISPLAY Section –	97
6-29. IC Pin Function Description	105
7. EXPLODED VIEWS	116
8. ELECTRICAL PARTS LIST	125

SECTION 1 SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveforms is output three times.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board. (within 3 times)
- Be careful not to apply force on the conductor when soldering or unsoldering.

Note:

Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.


CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.

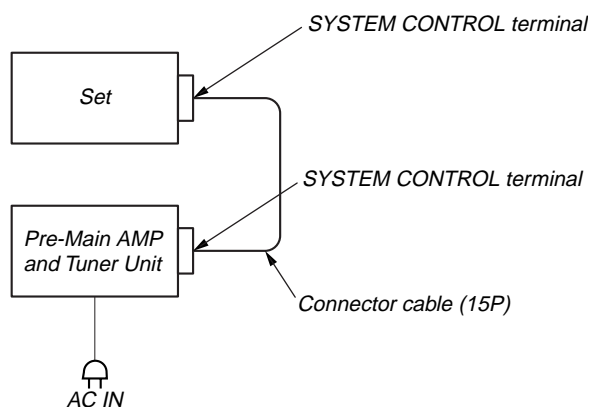
CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHERHEITSPERRUNG ÜBERBRÜCKT, NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALT-TIINA NÄKYMÄTTÖMÄLLÄ LASERSÄTEILYLLÄ. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLIG LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYÁZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY A  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

POWER SUPPLY DURING SERVICING

- As this set has not own power supply, it does not operate independently. Therefore, during servicing, connect it to the Pre-Main amplifier and Tuner Unit (STR-MD777) of DHC-MD777.



If STR-MD777 are not available, use the Power Feed Jig (PFJ-1) and Relay Connector Jig.

In this case, after turn on the POWER switch on the Power Feed Jig, supply power with the following methods.

– CD Section –

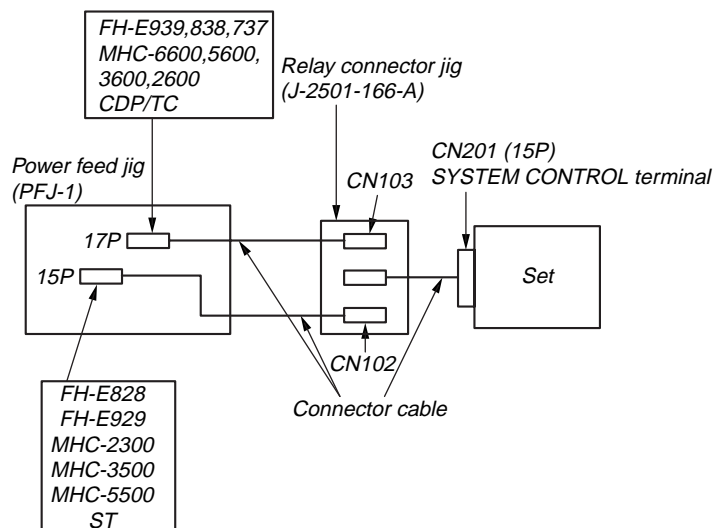
Press the **REPEAT** and **1/ALL** buttons simultaneously.
(Power is turned off, when press the **CLEAR** and **1/ALL** button simultaneously)

– MD Section –

Insert the disc in the any MD disc slot.

Note: Enter the test mode, when Insert the disc while pressing the both **ENTER/YES** and **[]** buttons
(or **ENTER/YES** button only).

Connection:

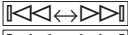
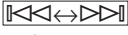
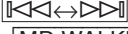


MD SECTION

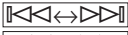
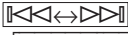
IOP DATA RECORDING AND DISPLAY WHEN PICK-UP AND NON-VOLATILE MEMORY (IC171 ON BD (MD) BOARD) ARE REPLACED

The IOP value labeled on the pick-up can be recorded in the non-volatile memory. By recording the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the pick-up or non-volatile memory (IC171 on BD (MD) board), record the IOP value on the pick-up according to the following procedure.

Record Procedure:

1. Enter the test mode. (See the “SECTION 5 TEST MODE” for detail of test mode)
2. Turn the  dial to display “[Service]”, and press the **ENTER/YES** button.
3. Turn the  dial to display “Iop.Write” (C28), and press the **ENTER/YES** button.
4. The display becomes “Ref=@ @ . @” (@ is an arbitrary number) and the numbers which can be changed will blink.
5. Input the IOP value written on the optical pick-up.
To select the number: Turn the  dial.
To select the digit : Press the **MD WALKMAN SYNC** button.
6. When the **ENTER/YES** button is pressed, the display becomes “Measu=@ @ @ . @” (@ is an arbitrary number).
7. As the adjustment results are recorded for the step 6. value. Leave it as it is and press the **ENTER/YES** button.
8. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write”.
9. Press the **REPEAT** button to complete, and the set returns to normal mode.

Display Procedure:

1. Enter the test mode. (See the “SECTION 5 TEST MODE” for detail of test mode)
2. Turn the  dial to display “[Service]”, and press the **ENTER/YES** button.
3. Turn the  dial to display “Iop Read” (C27).
4. Press the **ENTER/YES** button. “@ @ . @ / ## . #” is displayed and the recorded contents are displayed.
@ @ . @ : indicates the Iop value labeled on the pick-up.
. # : indicates the Iop value after adjustment
5. To end, press the **MENU/NO** button to display “Iop Read”. Then press the **REPEAT** button, and the set returns to normal mode.

DISPLAY TEST MODE

This mode is test for fluorescent indicator tube, LED, buttons and jog dial.

This mode can not exit in the middle of the test, therefore finish the test when enter this mode.

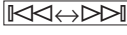
Fluorescent Indicator Tube and Buttons Test Mode

1. While pressing the both **ENTER/YES** and **REC** buttons, turn the power ON.
2. After display “FL AllOn key”, lights up all segments on fluorescent indicator tube immediately.
3. Press every buttons of except **MD WALKMAN SYNC** button on the MD section, then each segment goes off and remain the “L-SYNC”.
4. Press the **MD WALKMAN SYNC** button to display “Push YES”.
5. Press the **ENTER/YES** button and switch over to next check mode “5x7 Segments on Fluorescent Indicator Tube check”.

5x7 Segments on Fluorescent Indicator Tube Check Mode

1. After display “Seg Chk”, 5x7 segments part changes to display mesh pattern immediately.
2. Press the **ENTER/YES** button to display “Jog & LED”, and switch over to next check mode “JOG & LED Check”.

JOG & LED Check Mode

1. Each time the  dial is turned, **MD WALKMAN SYNC** LED lights on/off and **MD1-5** LED color changes into green/amber.
2. Press the **ENTER/YES** button to display “Check End!”.

Exiting or Repeat the Display Test Mode

Press the **ENTER/YES** button: Exit to “Display Test Mode” and enter the other test mode.

Press the **MENU/NO** button : Repeat the “Display Test Mode”

AGING MODE

Record 5 seconds repeat to each five discs.

Note: Aging mode can not perform, if disconnect to the pre-main amplifier and tuner unit (STR-MD777) of DHC-MD777.

Setting the Aging Mode

1. Insert recordable discs in all MD disc slots.
2. Press the **▶▶** and **[REC MODE]** buttons simultaneously for a moment, then **[□]** and **[REC]** buttons simultaneously for a few seconds.
3. Enter the Aging Mode and start loading DISC1.

Exiting the Aging Mode

Press the **[MENU/NO]** button.

However exiting the aging mode, it continues performing action.

Display during the Aging Mode

Normal displays in recording, but displays as follow when change the disc.

0000 D-0:*

Note: •“0000” indicates the count of complete cycle.

•“D-0” indicates disc slot No. of active disc.

•“:*” indicates that loading is on.

Display of error happened

Displays “0000 D-0:*” and error message alternately when error happened.

Error Message	Contents
NG TOCWRITE	Disagree count of aging cycle and TOC.
NG CHACKING	Time over (20 seconds) , when tried chucking
NG RELEAS	Time over (20 seconds) , when tried eject.
MECHA ERR	Mechanical error, after retry two times.
NG RECPAUSE	Did not REC pause condition. (Head did not down, or etc.)
NG REC 5s	Could not start recording.
NG BLANK	Could not all erase.

Clear the error

Press the **◀◀** or **[CLEAR]** button to clear the error, and restart the aging mode.

CHANGER TEST MODE

Setting Changer Test Mode

1. While pressing the both **[ENTER/YES]** and **[▶▶]** buttons, turn the power ON.
2. Display “CHANGER TEST!!” and enter the changer test mode.

Exiting the Changer Test Mode

Press the **[ENTER/YES]** button to normal mode.

Operation for Changer Test Mode

Refer to the following operations, and each button except MD1 to 5 is active while it is pressed.

Function	Contents
▶▶	Elevator up. Stop when reset switch (S571) is turned on (*1)
CLEAR	Elevator down. Stop when home switch (S570) is turned on (*1)
REC	Loading in. Stop when loading in switch (S573) is turned on (*1, 2)
[□]	Loading out. Stop when loading out switch (S572) is turned on (*1, 2)
NAME EDIT	Head down. Stop when head down switch (S7) is turned on (*3)
1/ALL	Head up. Stop when head up switch (S6) is turned on (*3)
MD1 to 5	Elevator up/down to each MD slot (slit) position (*1)

*1) Can not operation, when head is down (S6: off).

*2) Make it sure to perform these operations after pressing the MD1 to 5 button and elevator up/down to each MD slot position.

*3) Make it sure to perform these operations are after elevator downs to home position (bottom). Because, these operations no have relation to with the elevator position.

LED Indication

LEDs of MD1 to 5 turn on (green) when press MD1 to 5 button and elevator up/down to each MD slot position. (Once turned on LED does not turn off until exit the changer test mode)

When insert disc in the disc slot and disc1 to 5 switch (S1 to 5) turn on, change the color to amber.

CHECKS PRIOR TO PARTS REPLACEMENT AND ADJUSTMENTS

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent. Details of the procedures are described in “5 Electrical Adjustments”.

	Criteria for Determination (Unsatisfactory if specified value is not satisfied)	Measure if unsatisfactory:
Laser power check (See page 33)	<ul style="list-style-type: none"> 0.9 mW power Specified value : 0.84 to 0.92 mW 7.0 mW power Specified value : 6.8 to 7.2 mW 	<ul style="list-style-type: none"> Clean the optical pick-up Adjust again Replace the optical pick-up
	<ul style="list-style-type: none"> Iop (at 7mW) Labeled on the optical pickup Iop value $\pm 10\text{mA}$ 	<ul style="list-style-type: none"> Replace the optical pick-up
Traverse check (See page 33)	<ul style="list-style-type: none"> Traverse waveform Specified value : Below 10% offset 	<ul style="list-style-type: none"> Replace the optical pick-up
Focus bias check (See page 34)	<ul style="list-style-type: none"> Error rate check Specified value : For points a, b, and c C1 error : Below 220 AD error : Below 2 	<ul style="list-style-type: none"> Replace the optical pick-up
C PLAY check (See page 34)	<ul style="list-style-type: none"> Error rate check Specified value: <ol style="list-style-type: none"> When using test disc (MDW-74/AU-1) C1 error : Below 80 AD error : Below 2 When using check disc (TDYS-1) C1 error : Below 50 	<ul style="list-style-type: none"> Replace the optical pick-up
Self-recording/playback check (REC/PLAY) (See page 34)	<ul style="list-style-type: none"> CPLAY error rate check Specified value: C1 error : Below 80 AD error : Below 2 	If always unsatisfactory: <ul style="list-style-type: none"> Replace the overwrite head Check for disconnection of the circuits around the overwrite head
		If occasionally unsatisfactory: <ul style="list-style-type: none"> Check if the overwrite head is distorted Check the mechanism around the sled
Temperature compensation offset check (See page 35)	<ul style="list-style-type: none"> If NG, displayed as “T=@@ (##) [NG]” (@@, ## are both arbitrary numbers) 	<ul style="list-style-type: none"> Check for disconnection of the circuits around D101 (BD (MD) board) Check the signals around IC101, IC121, CN102, CN103 (BD (MD) board)





Note:
The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments. When performing adjustments, use the specified values for adjustments.

CD SECTION

CD-TEXT TEST DISC

This unit is able to display the test data (character information) written in the CD on its fluorescent indicator tube. The CD-TEXT TEST DISC (TGCS-313: 4-989-366-01) is used for checking the display. To check, perform the following procedure.

Checking Method:

1. Turn ON the power, set the disc to the disc tray with the “test disc” label facing up, and chuck the disc.
2. Press the  button and play back the disc.
3. The following will be displayed on the fluorescent indicator tube.
Display: 1kHz/0 dB/ L&R
4. Turn the  dial or press the  /  (CD) button on remote commander and select the track. The text data of each track will be displayed.
For details of the displayed contents for each track, refer to “Table 1: CD-TEXT TEST DISC TEXT Data Contents” and “Table 2: CD-TEXT TEST DISC Recorded Contents and Display”.

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to “Table 2: CD-TEXT DISC Recorded Contents and Display”.

Table 1: CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41: Normal Characters)

TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/-90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/-10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
7	1kHz/0dB/L&R	28	19kHz+20kHz(1:1)/-10dB/L&R
8	5kHz/0dB/L&R	29	100Hz/0dB/L*
9	7kHz/0dB/L&R	30	1kHz/0dB/L*
10	10kHz/0dB/L&R	31	10kHz/0dB/L*
11	16kHz/0dB/L&R	32	20kHz/0dB/L*
12	18kHz/0dB/L&R	33	100Hz/0dB/R*
13	20kHz/0dB/L&R	34	1kHz/0dB/R*
14	1kHz/0dB/L&R	35	10kHz/0dB/R*
15	1kHz/-1dB/L&R	36	20kHz/0dB/R*
16	1kHz/-3dB/L&R	37	100Hz Squer Wave//L&R
17	1kHz/-6dB/L&R	38	1kHz Squer Wave//L&R
18	1kHz/-10dB/L&R	39	1kHz w/emphasis/-0.37dB/L&R
19	1kHz/-20dB/L&R	40	5kHz w/emphasis/-4.53dB/L&R
20	1kHz/-60dB/L&R	41	16kHz w/emphasis/-9.04dB/L&R
21	1kHz/-80dB/L&R		

Note: The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

Table 2: CD-TEXT TEST DISC Recorded Contents and Display

(In this unit, some special characters cannot be displayed. This is no a fault.)

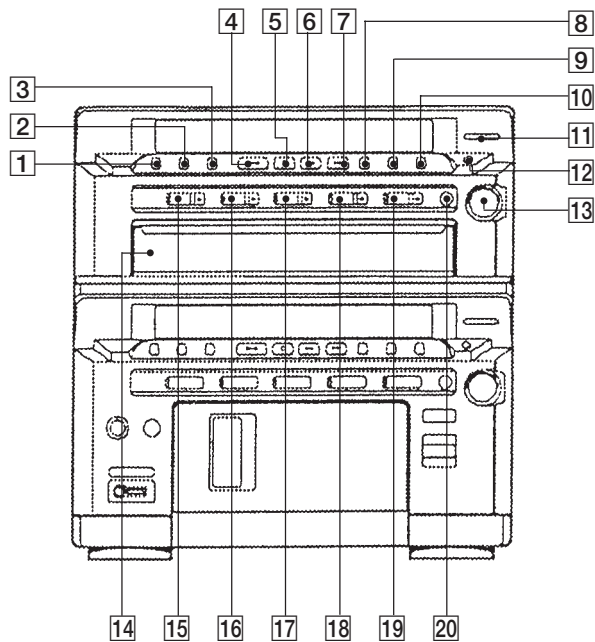
TRACK No.	Recorded contents	Display
42	! " # \$ % & ' (21h to 27h) 1kHz 0dB L&R	← All the same
43	() * + , - . / (28h to 2Fh)	← All the same
44	0 1 2 3 4 5 6 7 (30h to 37h)	← All the same
45	8 9 : ; < = > ? (38h to 3Fh)	← All the same
46	@ A B C D E F G (40h to 47h)	← All the same
47	H I J K L M N O (48h to 4Fh)	← All the same
48	P Q R S T U V W (50h to 57h)	← All the same
49	X Y Z [\] ^ _ (58h to 5Fh)	X Y Z [\] ^ _ (58h to 5Fh)
50	` a b c d e f g (60h to 67h)	← All the same
51	h i j k l m n o (68h to 6Fh)	← All the same
52	p q r s t u v w (70h to 77h)	← All the same
53	x y z { } ~ ■ (78h to 7Fh)	← All the same
54	■ i ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	(A0h to A7h) 8859-1
55	¨ © ª « ¬ ® ¯ (A8h to AFh)	(A8h to AFh)
56	• ± ² ³ ´ µ ¶ • (B0h to B7h)	(B0h to B7h)
57	† † ° » ¼ ½ ¾ ¿ (B8h to BFh)	(B8h to BFh)
58	À Á Â Ã Ä Å Æ Ç (C0h to C7h)	A A A A A A C (C0h to C7h)
59	È É Ê Ë Ì Í Î Ï (C8h to CFh)	E E E E I I I I (C8h to CFh)
60	Ð Ñ Ò Ó Ô Õ Ö (D0h to D7h)	D N O O O O O (D0h to D7h)
61	Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh)	O U U U U Y (D8h to DFh)
62	à á â ã ä å æ ç (E0h to E7h)	a a a a a a c (E0h to E7h)
63	è é ê ë ì í î ï (E8h to FFh)	e e e e i i i i (E8h to FFh)
64	ð ñ ò ó ô õ ö ÷ (F0h to F7h)	d n o o o o o (F0h to F7h)
65	ø ù ú û ü ý þ ÿ (F8h to FFh)	o u u u u y y (F8h to FFh)
66	No.66	← All the same
67	No.67	← All the same
to	to	to
99	No.99	← All the same

SECTION 2 GENERAL

LOCATION OF CONTROLS

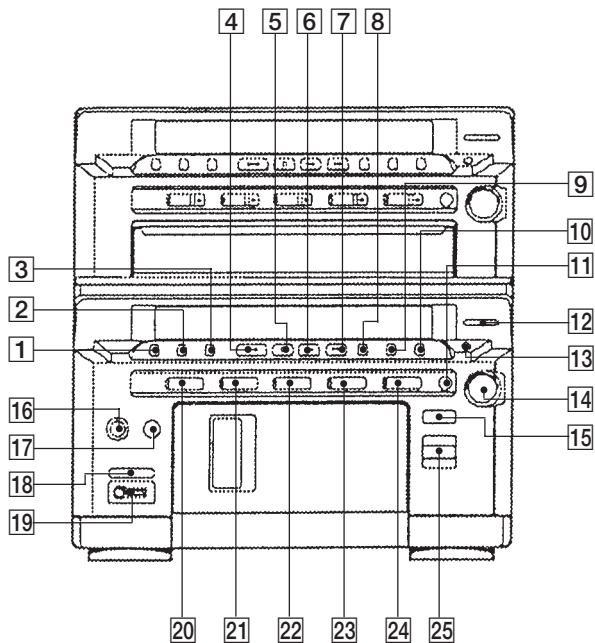
– Front Panel –

• CD PLAYER Section



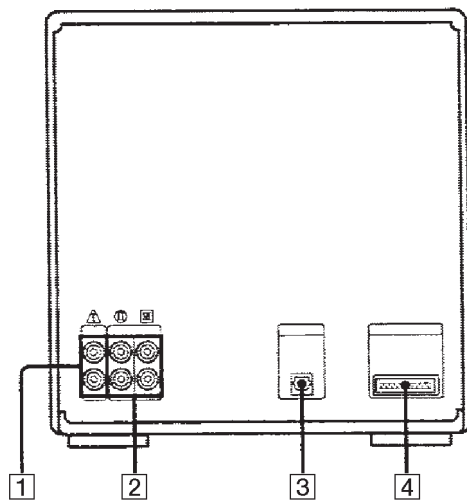
- 1 1/ALL button
- 2 PLAY MODE button
- 3 REPEAT button
- 4 ▷|| button
- 5 □ button
- 6 ◀◀ button
- 7 ▶▶ button
- 8 NAME EDIT button
- 9 MENU/NO button
- 10 ENTER/YES button
- 11 DISPLAY button
- 12 CLEAR button
- 13 ◀◀ ↔ ▶▶ dial
- 14 CD disc tray
- 15 CD1 button and indicator
- 16 CD2 button and indicator
- 17 CD3 button and indicator
- 18 CD4 button and indicator
- 19 CD5 button and indicator
- 20 DISC SKIP button

• MD DECK Section



- 1 1/ALL button
- 2 PLAY MODE button
- 3 REPEAT button
- 4 ▷|| button
- 5 □ button
- 6 ◀◀ button
- 7 ▶▶ button
- 8 NAME EDIT button
- 9 MENU/NO button
- 10 ENTER/YES button
- 11 DISC SKIP button
- 12 DISPLAY button
- 13 CLEAR button
- 14 ◀◀ ↔ ▶▶ dial
- 15 OPEN button
- 16 REC button
- 17 REC MODE button
- 18 MD WALKMAN SYNC button and indicator
- 19 MD WALKMAN LINK jack
- 20 MD1 button and indicator
- 21 MD2 button and indicator
- 22 MD3 button and indicator
- 23 MD4 button and indicator
- 24 MD5 button and indicator
- 25 ☰ button

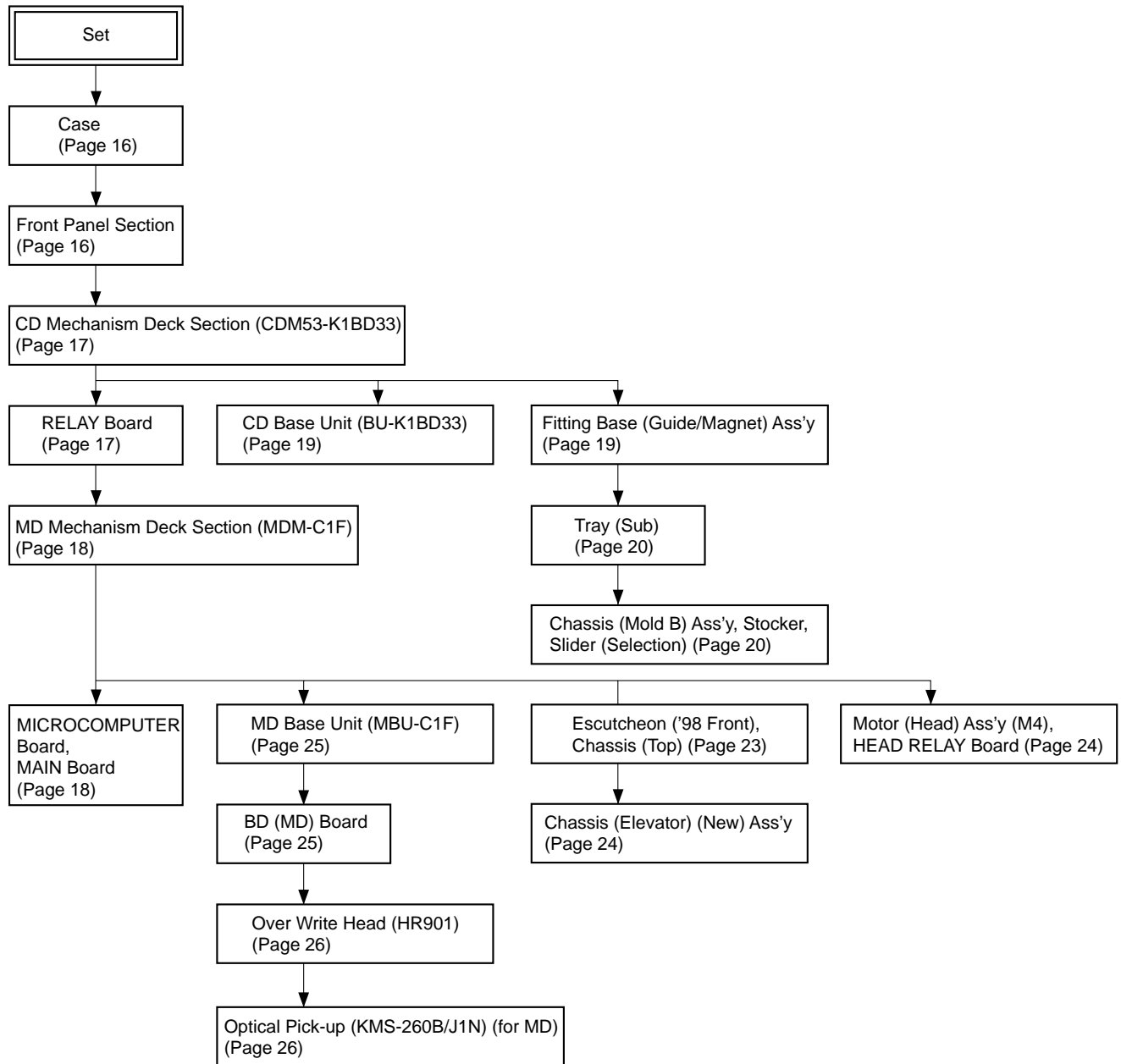
– REAR PANEL –



- 1 CD ANALOG OUT jack
- 2 MD ANALOG IN/OUT jack
- 3 OPTICAL IN, DIGITAL IN connector
- 4 SYSTEM CONTROL terminal

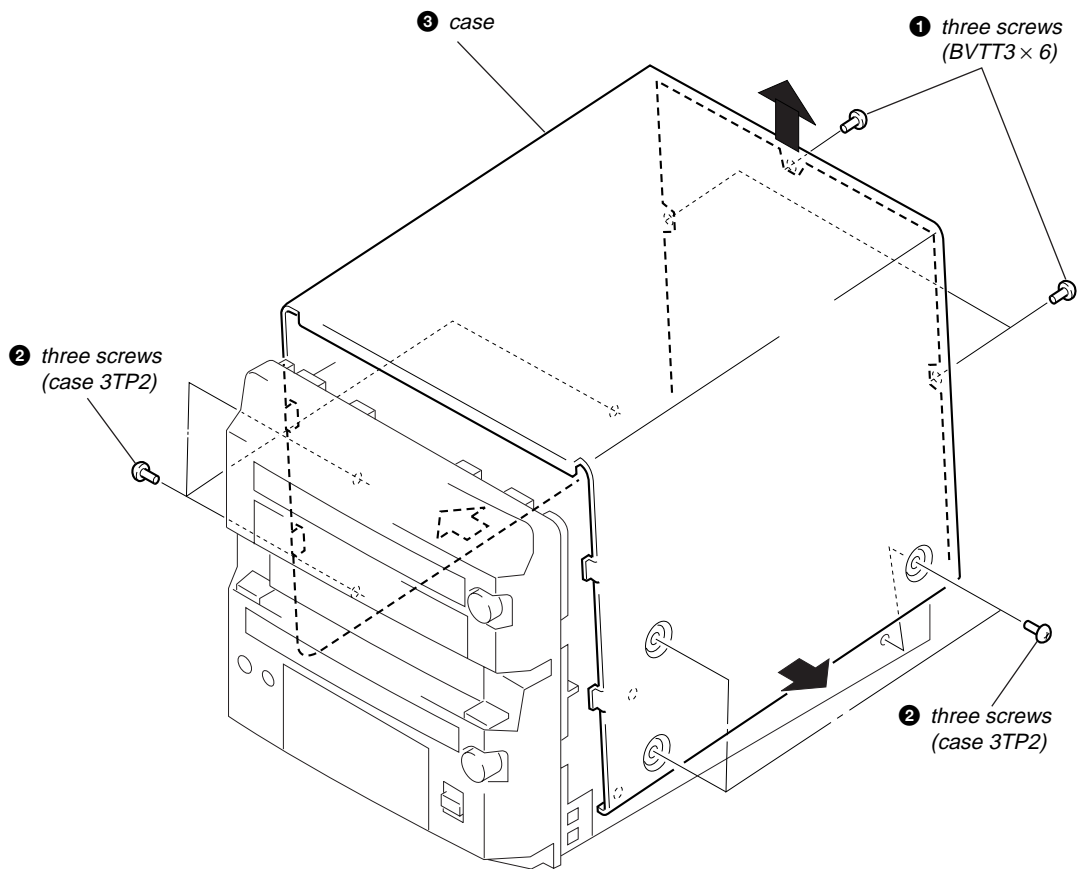
SECTION 3 DISASSEMBLY

- This set can be disassembled in the order shown below.

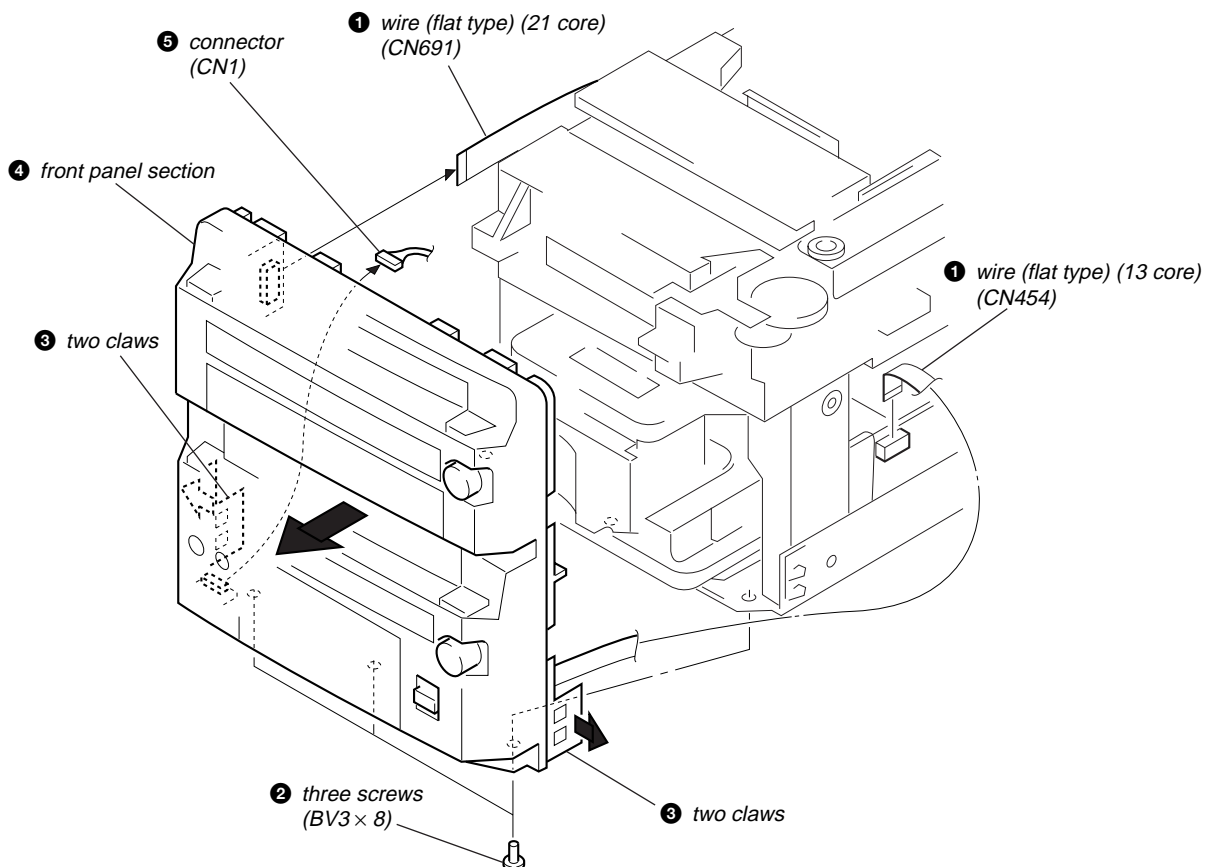


Note: Follow the disassembly procedure in the numerical order given.

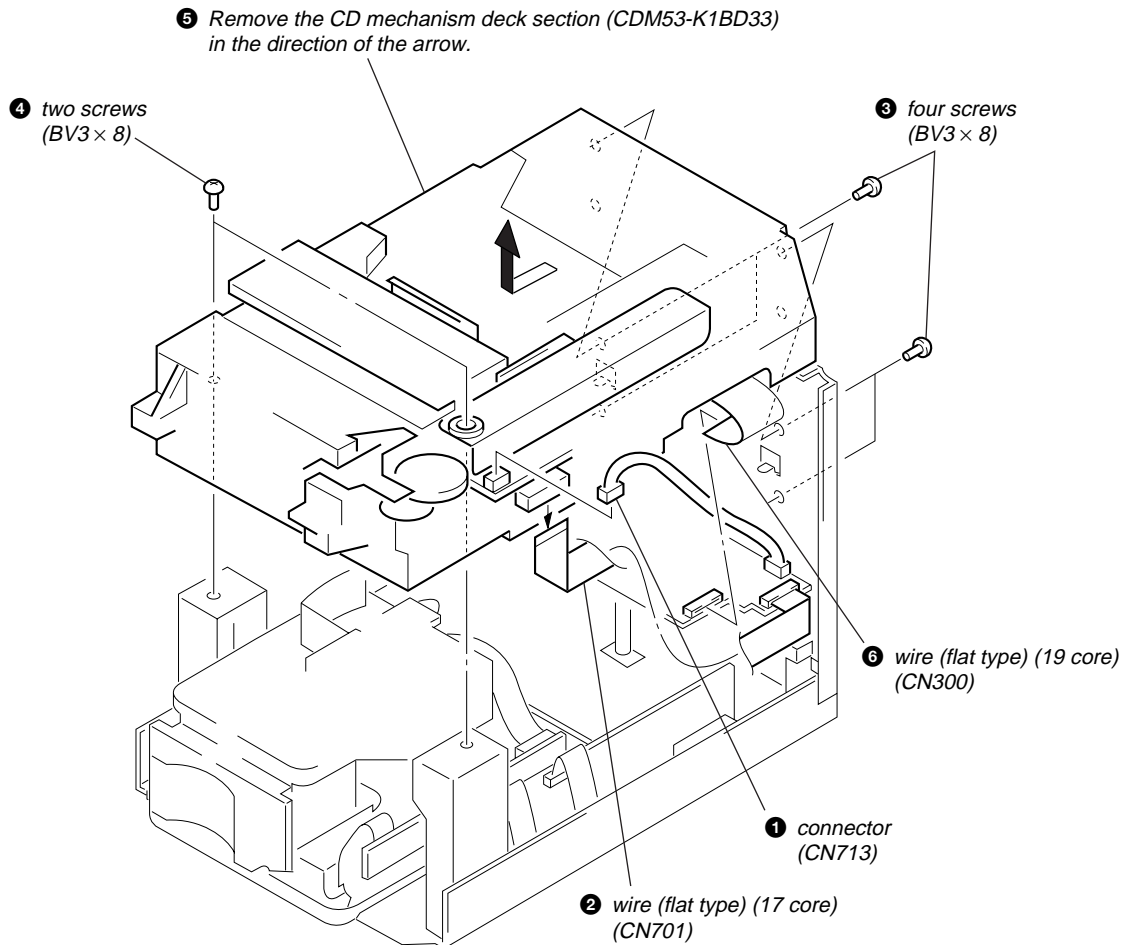
CASE



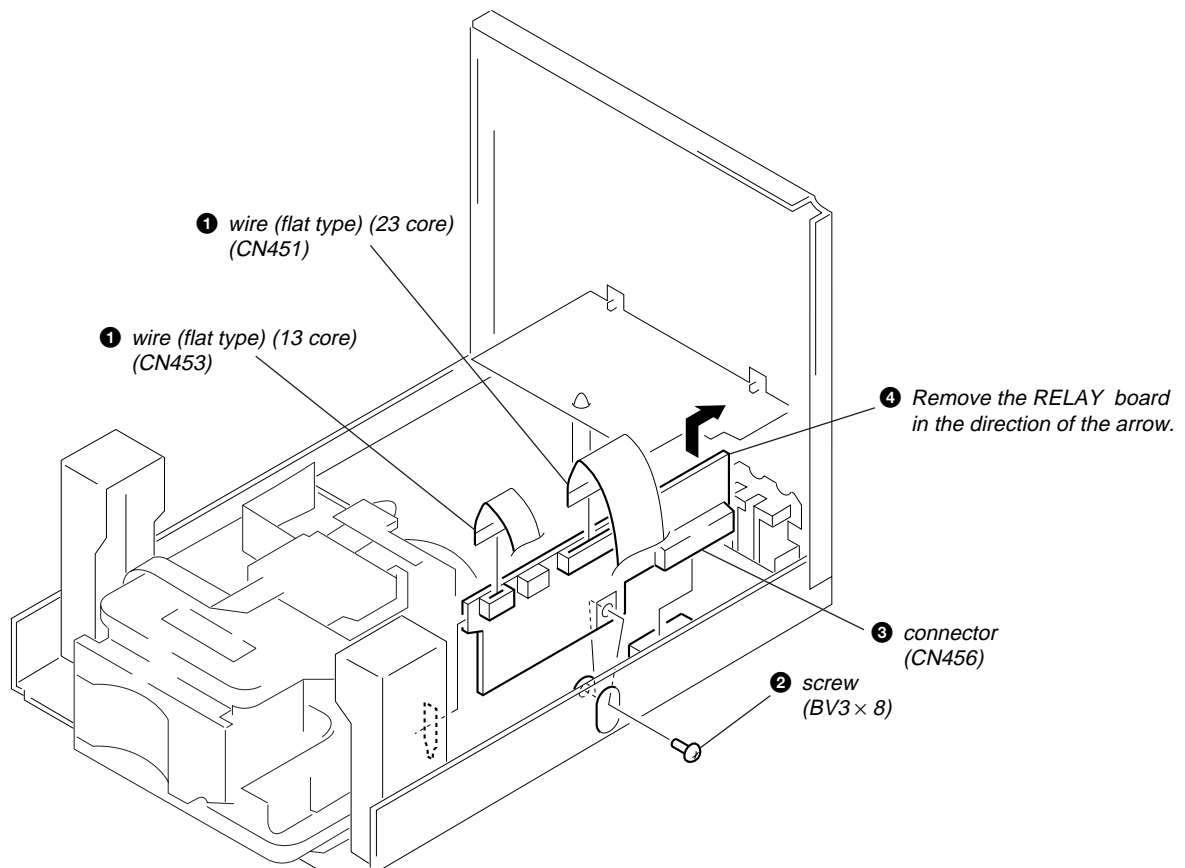
FRONT PANEL SECTION



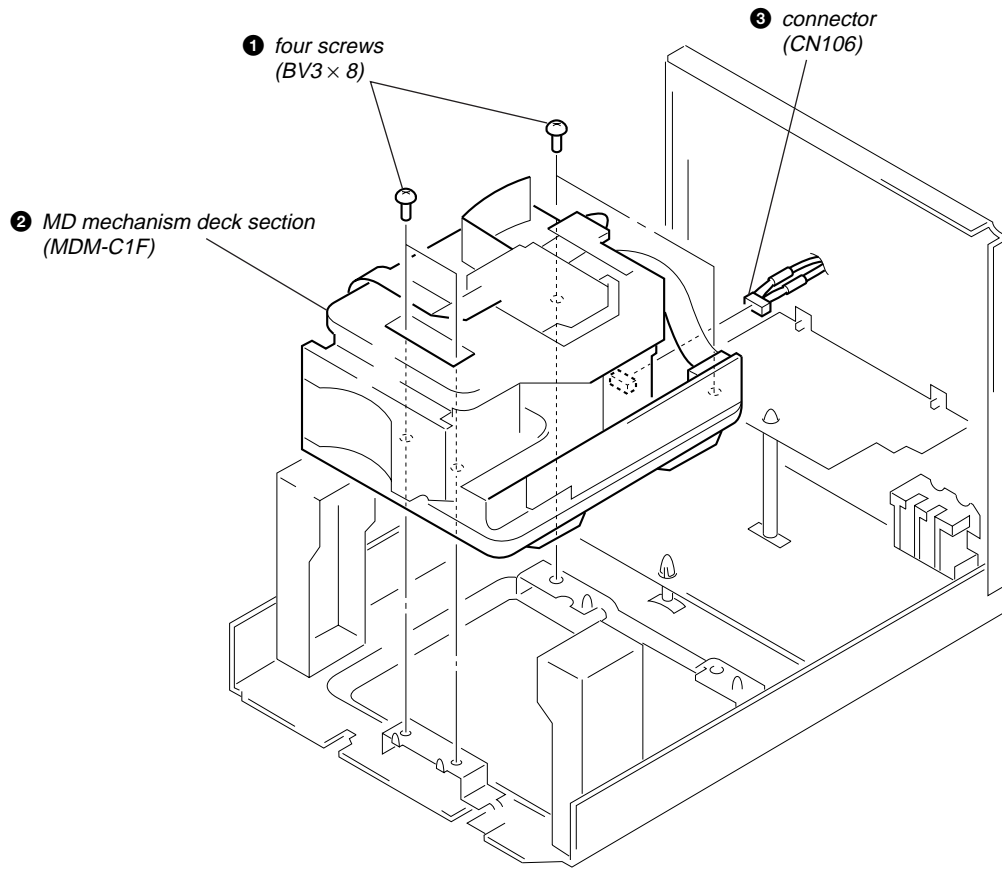
CD MECHANISM DECK SECTION (CDM53-K1BD33)



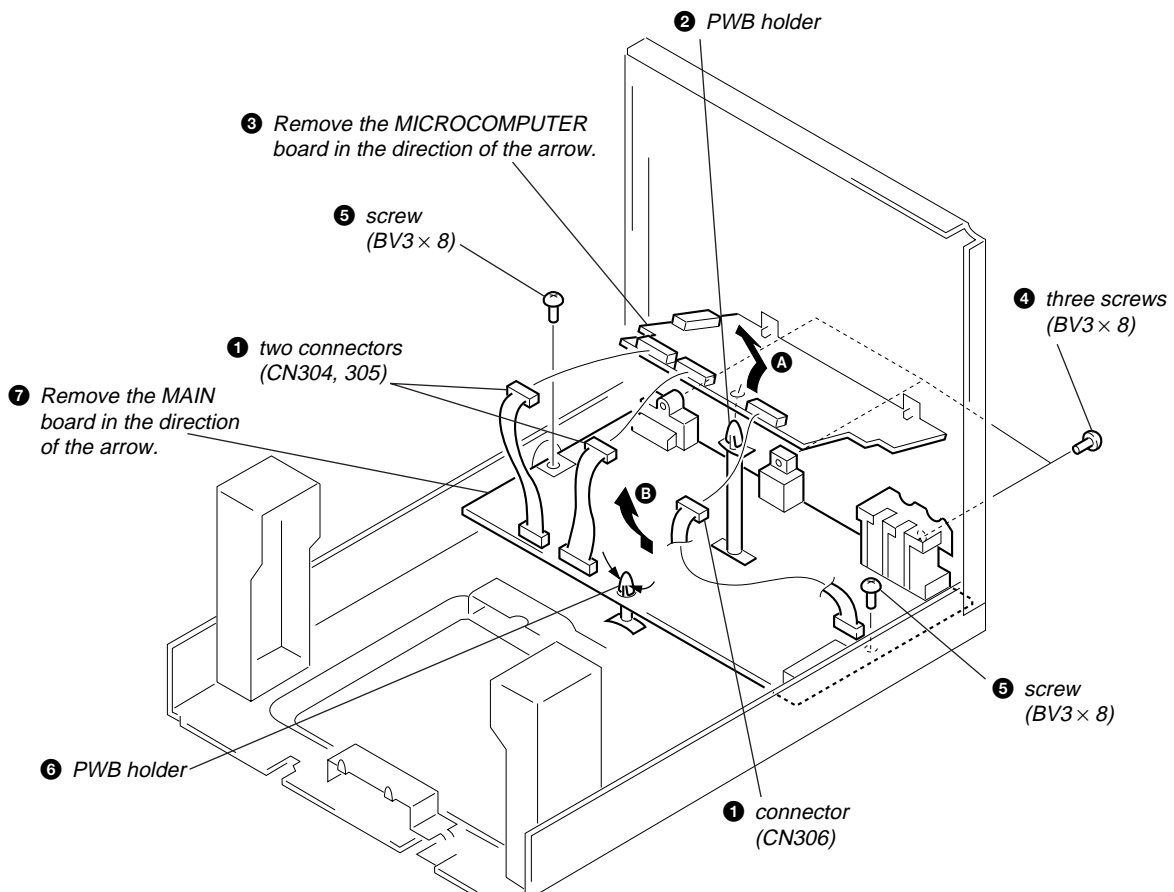
RELAY BOARD



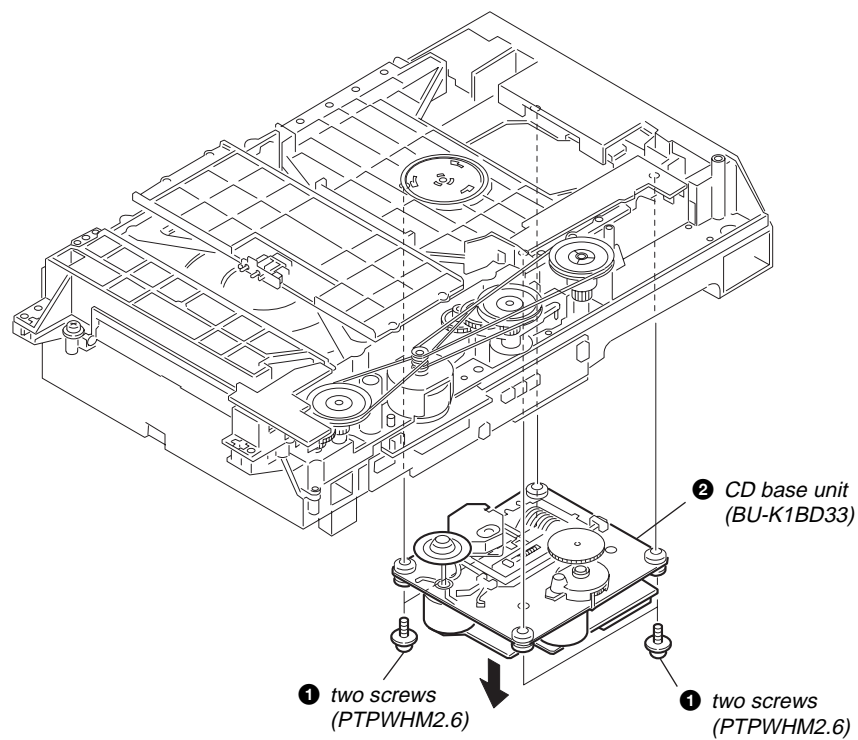
MD MECHANISM DECK SECTION (MDM-C1F)



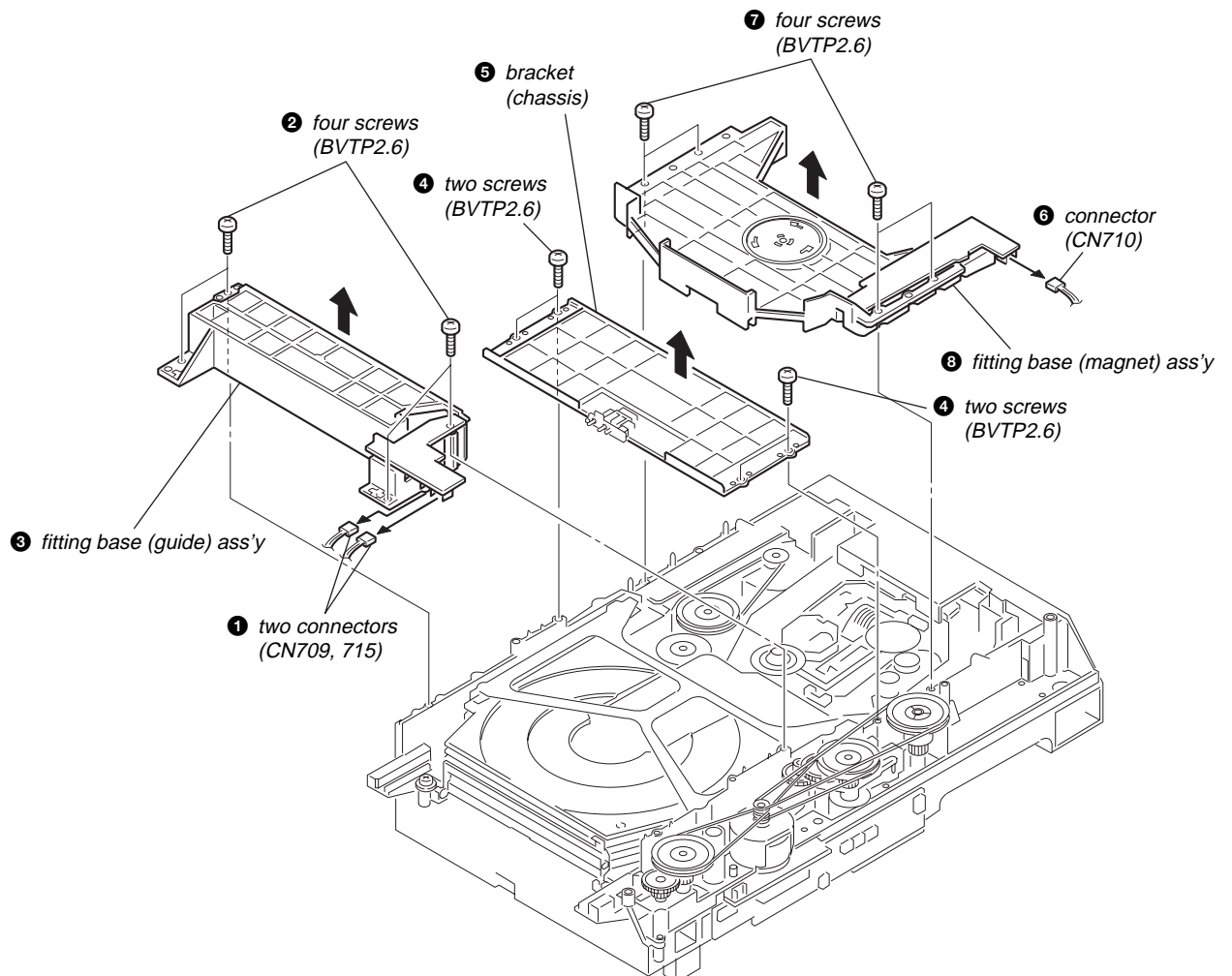
MICROCOMPUTER BOARD, MAIN BOARD



CD BASE UNIT (BU-K1BD33)

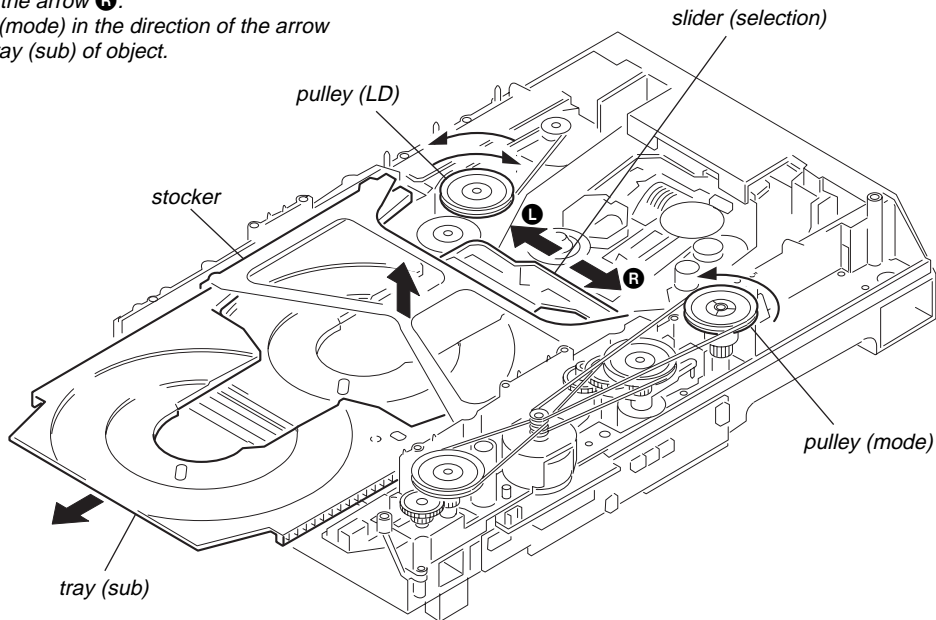


FITTING BASE (GUIDE/MAGNET) ASS'Y



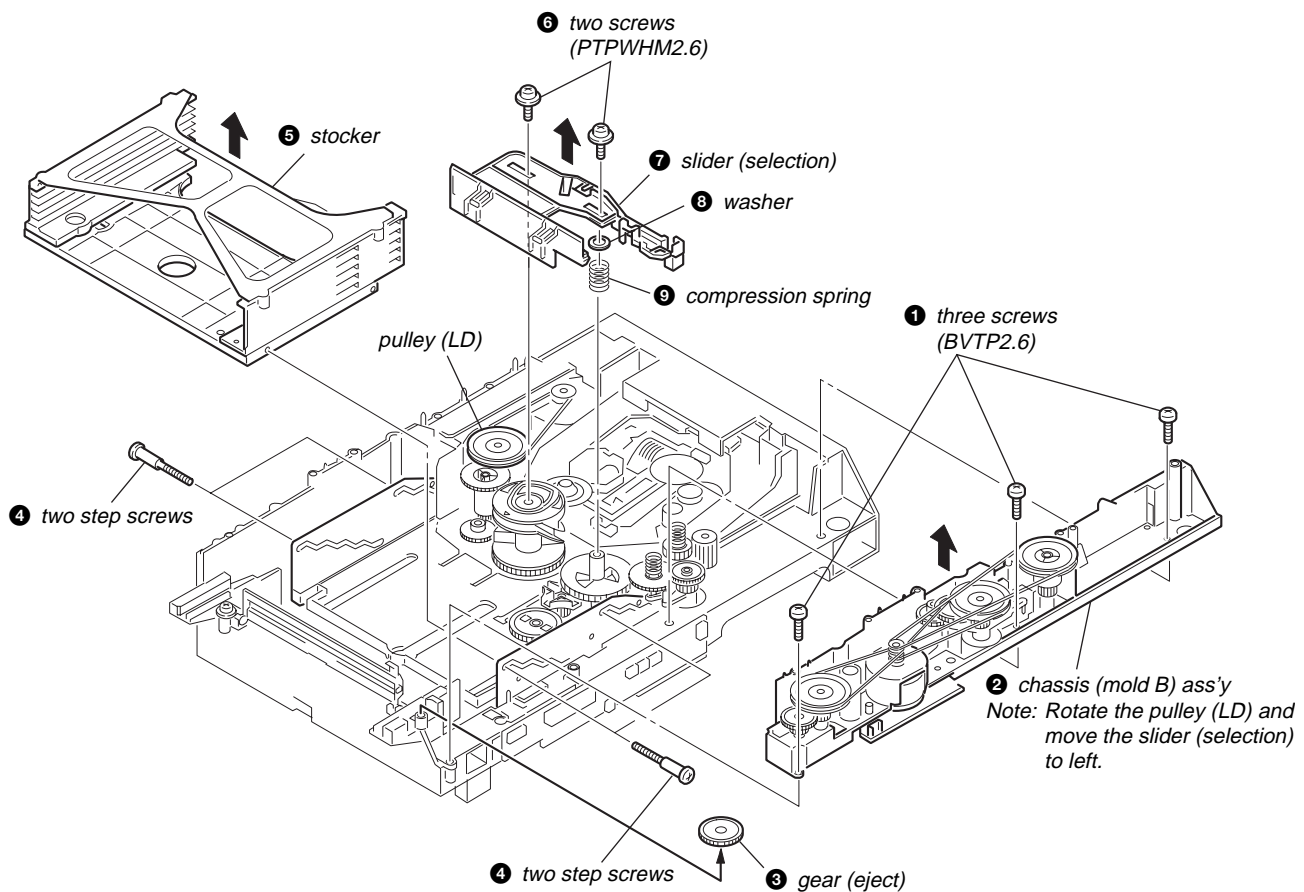
TRAY (SUB)

- ❶ Rotate the pulley (LD) and move the slider (selection) in the direction of the arrow **L**.
- ❷ Rotate the pulley (mode) in the direction of the arrow and adjust the tray (sub) of object.
- ❸ Rotate the pulley (LD) and move the slider (selection) in the direction of the arrow **R**.
- ❹ Rotate the pulley (mode) in the direction of the arrow and remove the tray (sub) of object.

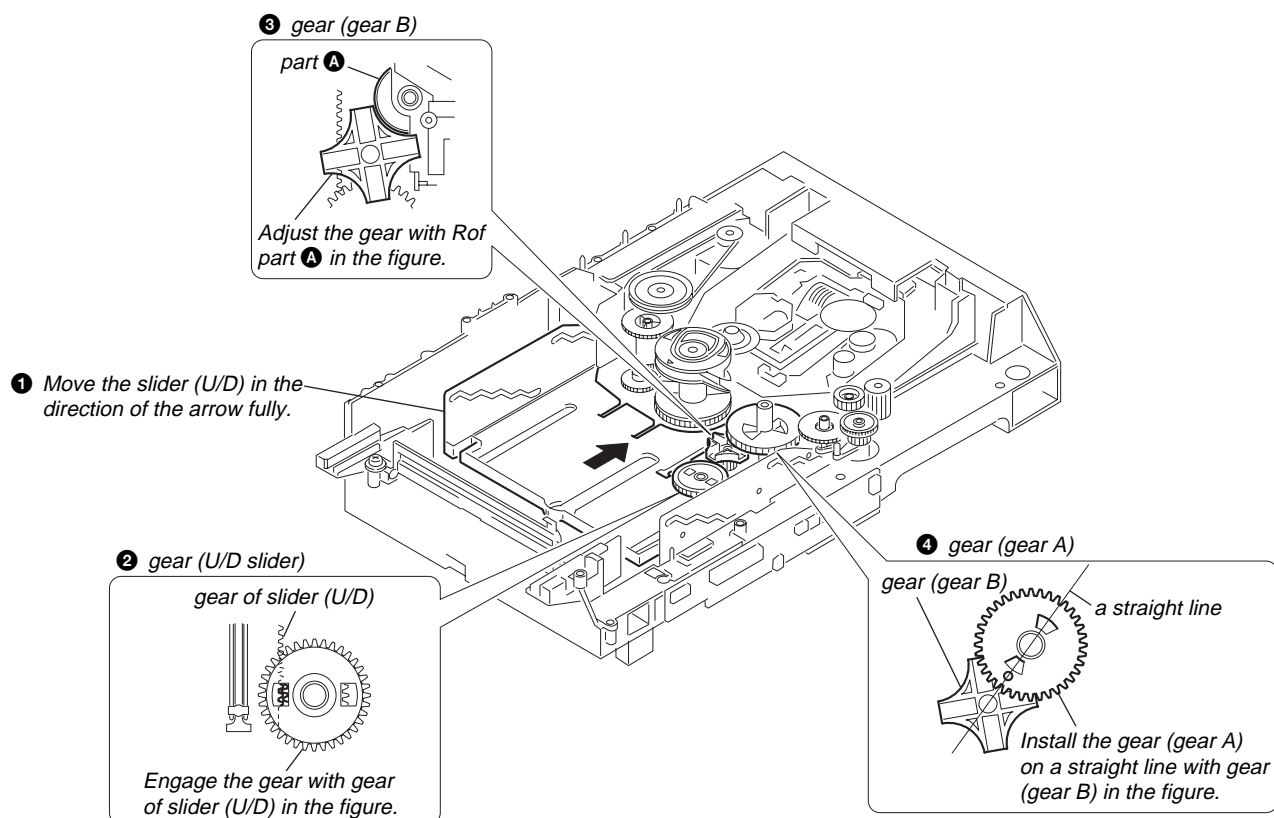


CHASSIS (MOLD B) ASS'Y, STOCKER, SLIDER (SELECTION)

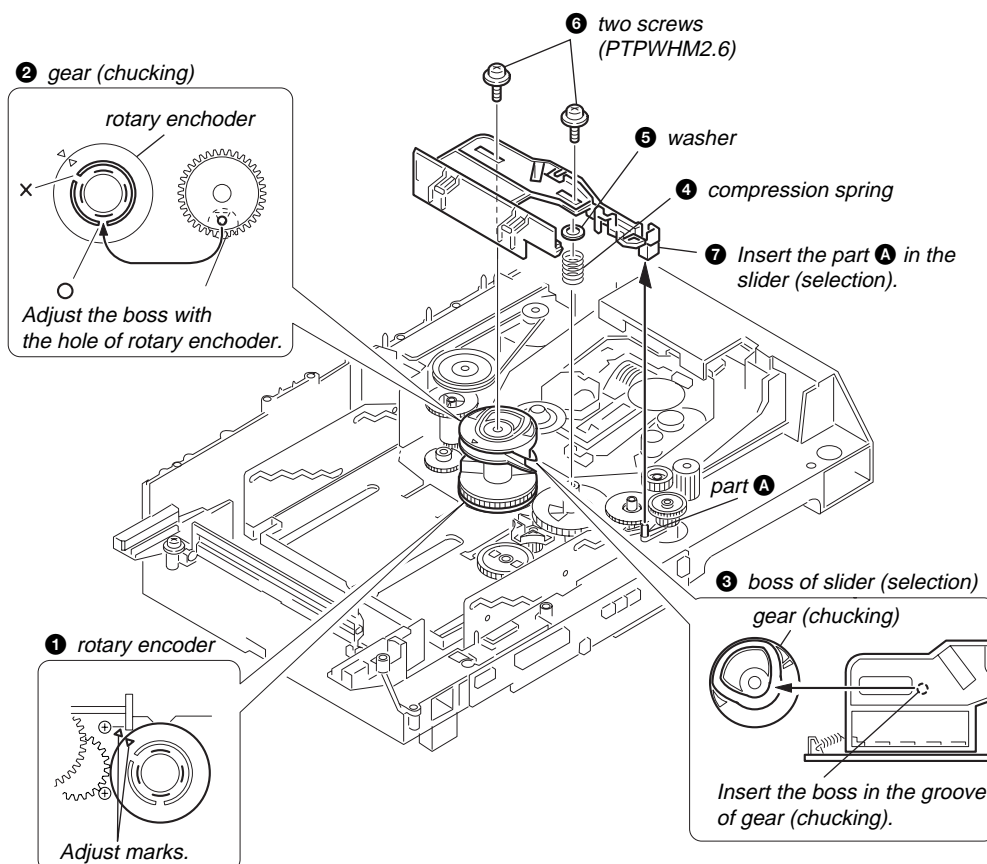
Note: Refer to page 21, 22 when install.



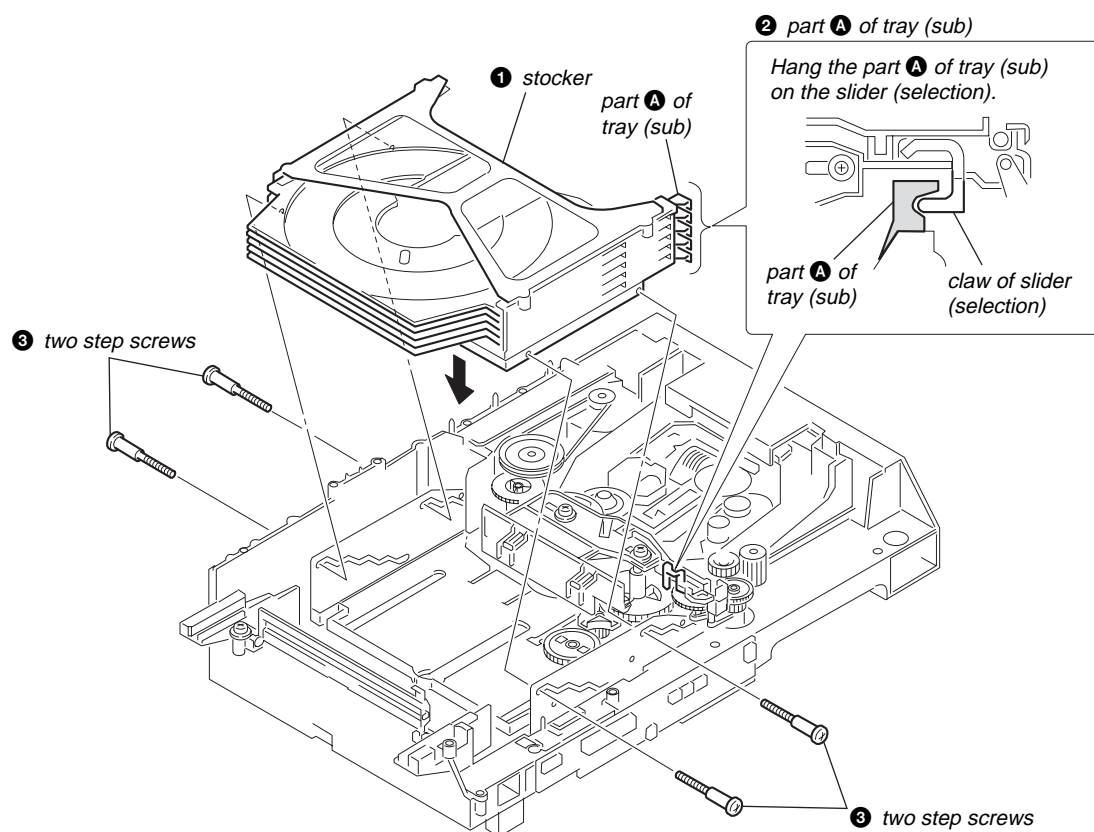
INSTALLATION OF GEARS



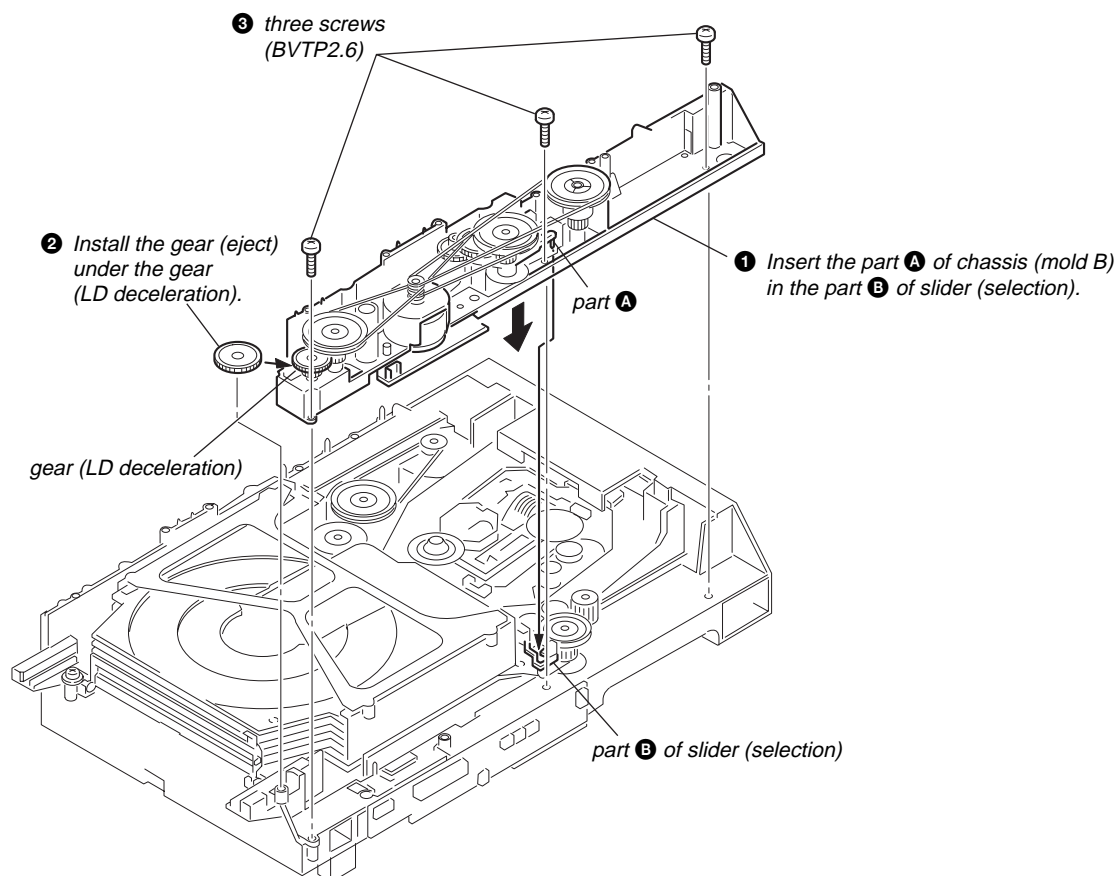
INSTALLATION OF SLIDER (SELECTION)



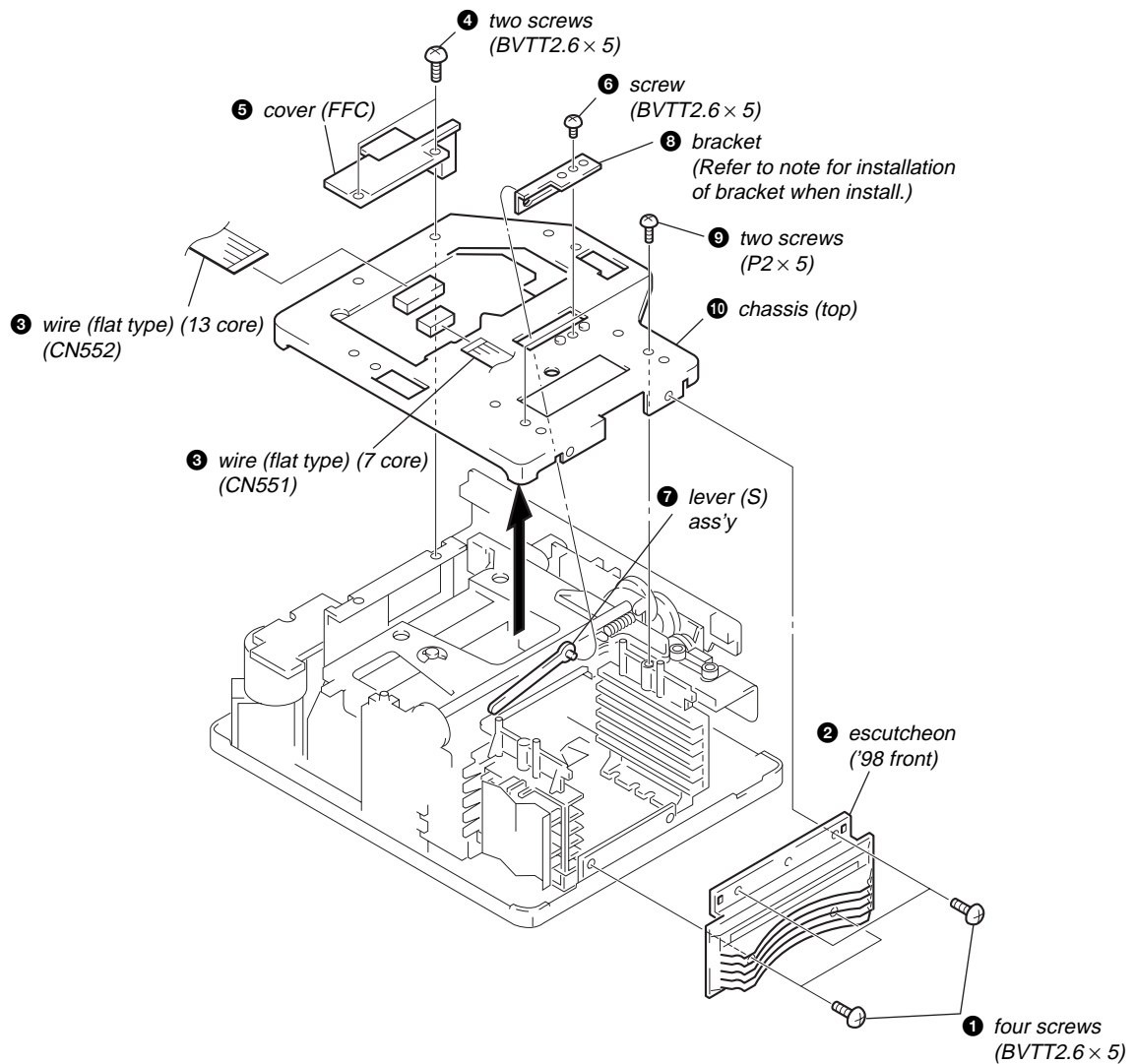
INSTALLATION OF STOCKER



INSTALLATION OF CHASSIS (MOLD B)

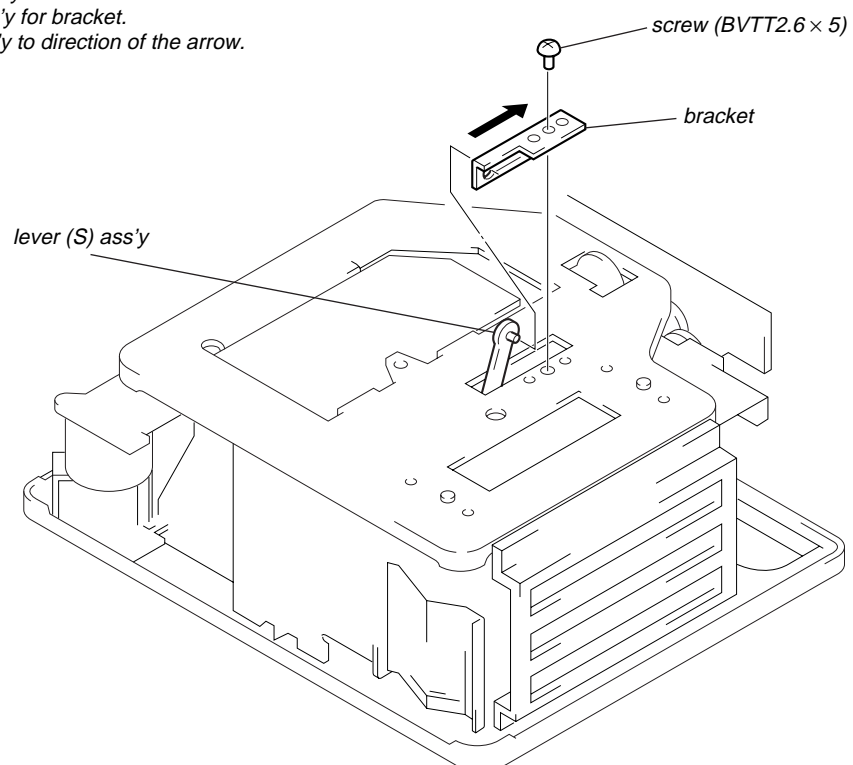


ESCUTCHEON ('98 FRONT), CHASSIS (TOP)



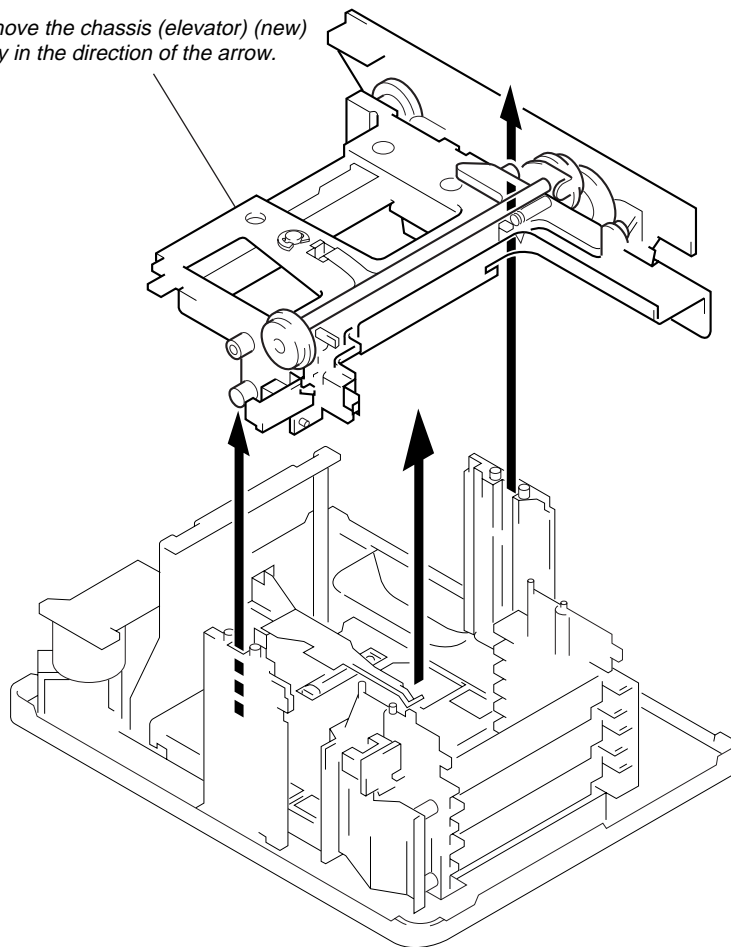
NOTE FOR INSTALLATION OF BRACKET

- ❶ Lift up the lever (S) ass'y.
- ❷ Hang the lever (S) ass'y for bracket.
- ❸ Slide the lever (S) ass'y to direction of the arrow.

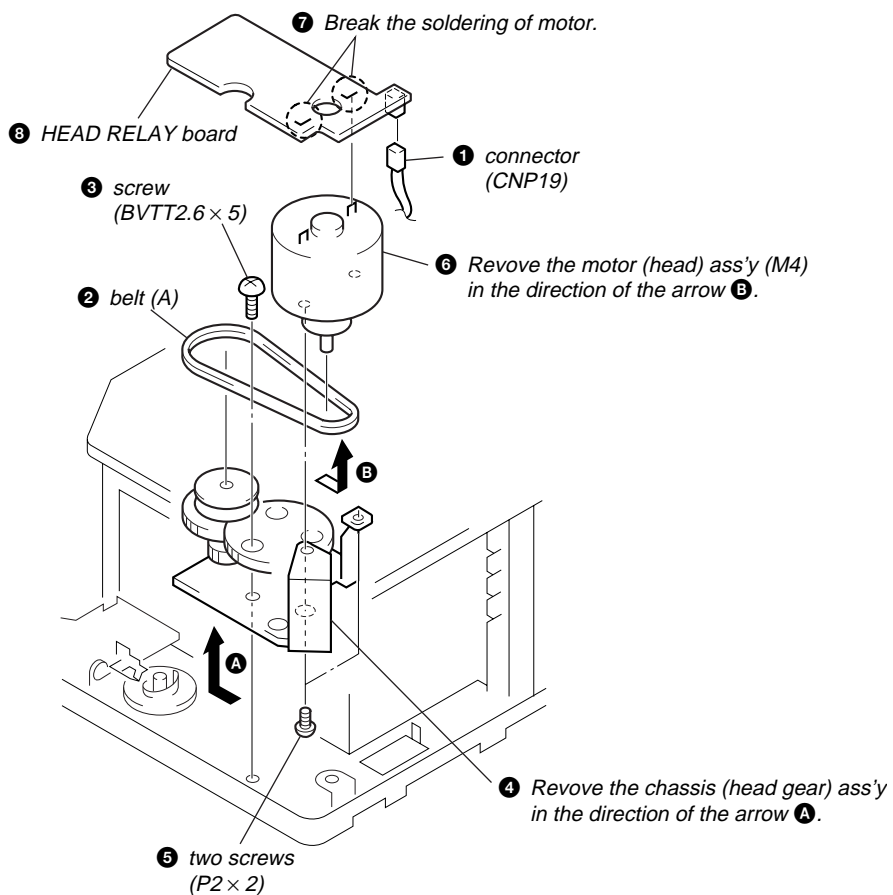


CHASSIS (ELEVATOR) (NEW) ASS'Y

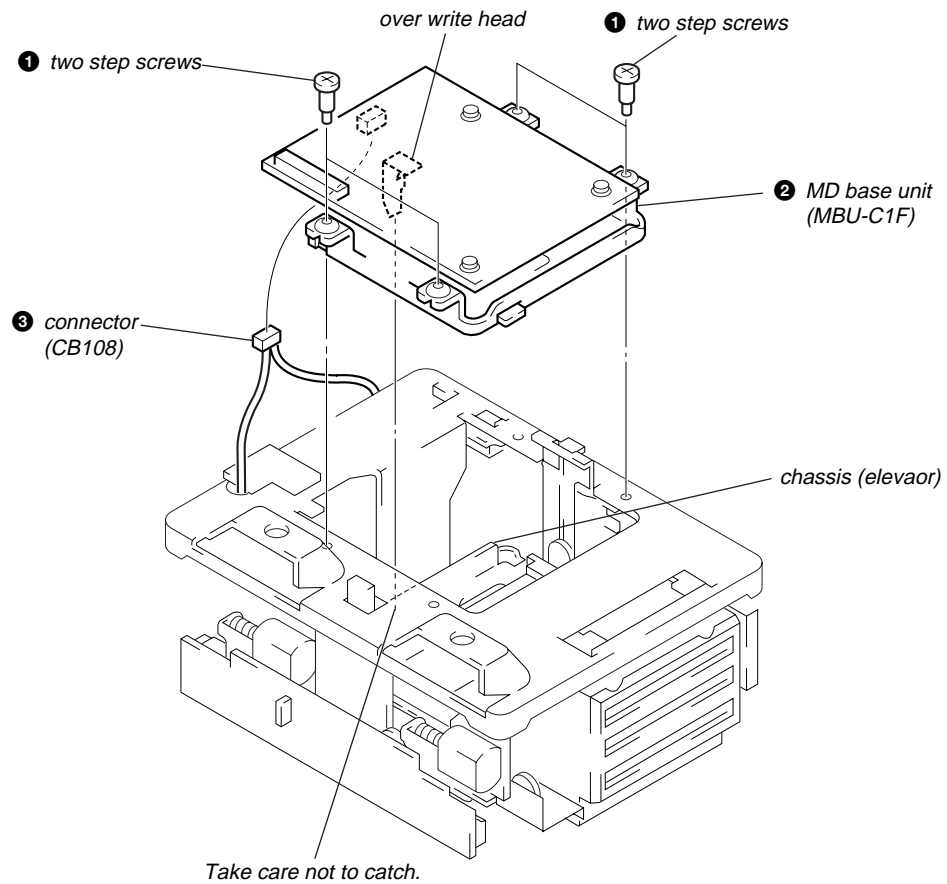
- ❶ Remove the chassis (elevator) (new) ass'y in the direction of the arrow.



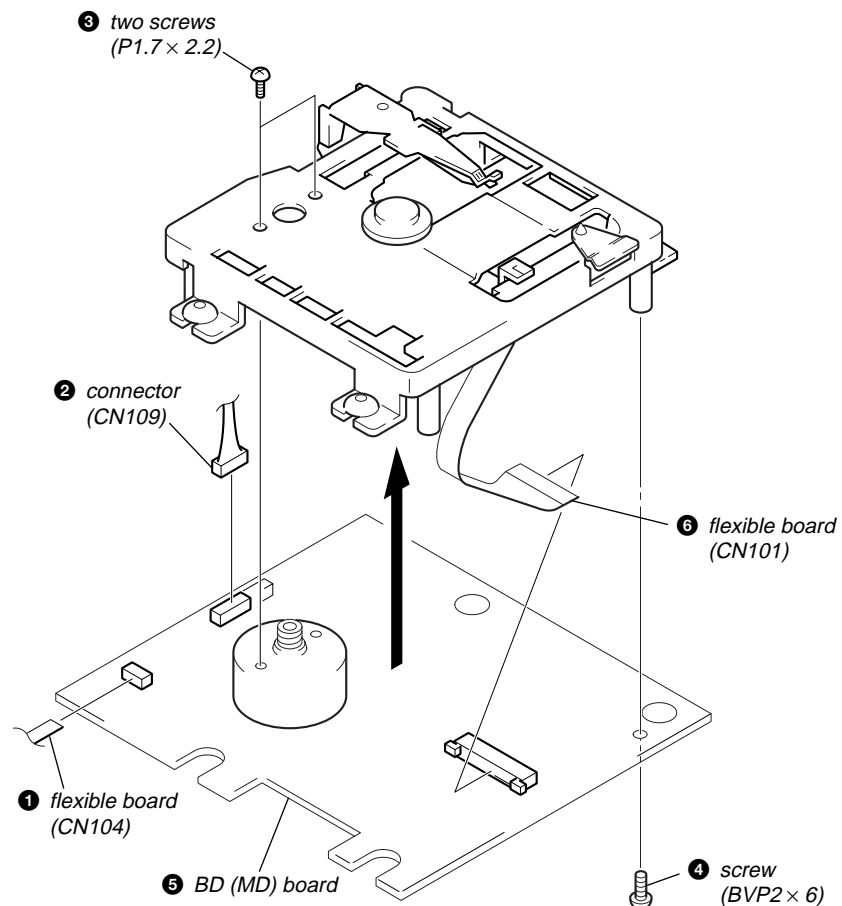
MOTOR (HEAD) ASS'Y (M4), HEAD RELAY BOARD



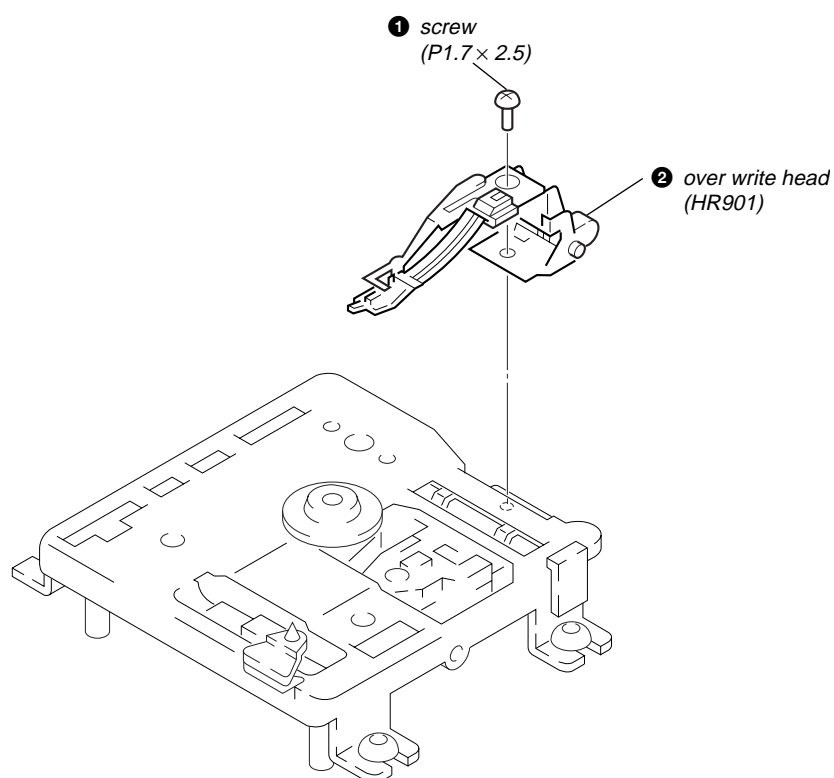
MD BASE UNIT (MBU-C1F)



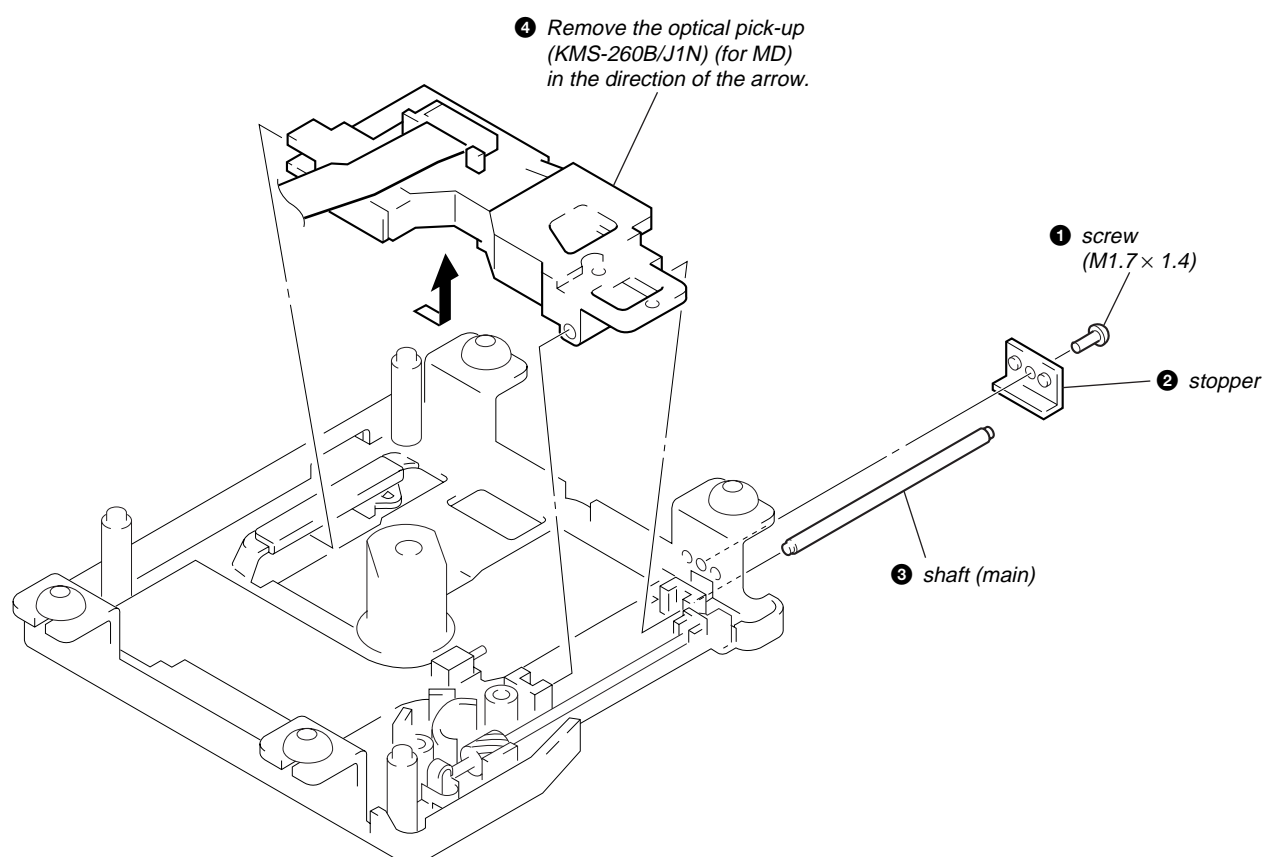
BD (MD) BOARD



OVER WRITE HEAD (HR901)






OPTICAL PICK-UP (KMS-260B/J1N) (for MD)




SECTION 4 TEST MODE

1. PRECAUTIONS FOR USE OF TEST MODE

- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the  (MD) button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Be sure to press the  (MD) button after pressing the  button and the rotation of disc is stopped.

1-1. Recording laser emission mode and operating buttons

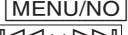
- Continuous recording mode (CREC MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUST)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)
- When pressing the  button.

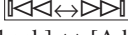
2. SETTING THE TEST MODE

The following are two methods of entering the test mode.

Procedure 1: (1) While pressing the both  and  buttons, turn the power ON.

When the test mode is set, “TEMP CHECK” will be displayed.

(2) Press the  button to display “[CHECK]”.

(3) Turn the  dial switches between the following four groups:

... ↔ [Check] ↔ [Adjust] ↔ [Service] ↔ [Develop] ↔

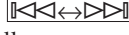

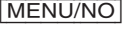
Procedure 2: While pressing the  button, turn the power ON.

When the test mode is set, “TEMP CHECK” will be displayed. By setting the test mode using this method, only the “Check” group of method 1 can be executed.

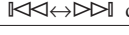
3. EXITING THE TEST MODE

Press the  button. The disc is ejected when loaded, and the set will be normal mode.



4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the  knob,  button, and  button.

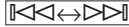

The functions of these buttons are as follows.

Function name	Function
 dial	Changes parameters and modes
YES button	Proceeds onto the next step. Finalizes input.
MENU/NO button	Returns to previous step. Stops operations.

4-1. Loading and Ejecting Disc in The Test Mode.

- Use MD slot1 only in the test mode.
- When loads disc, press the  (MD) button.
- When ejects disc, press the  (MD) button too.

5. SELECTING THE TEST MODE

There are 31 types of test modes as shown below. The groups can be switched by turning the  dial. After selecting the group to be used, press the **[ENTER/YES]** button. After setting a certain group, turning the  dial switches between these modes. Refer to “Group” in the table for details selected.

All items used for servicing can be treated using group S. So be carefully not to enter other groups by mistake.

Display	No.	Contents	Mark	Group (*)
TEMP CHECK	C01	Temperature compensation offset check		C S
LDPWR CHECK	C02	Laser power check		C S
EF MO CHECK	C03	Traverse (MO) check		C S
EF CD CHECK	C04	Traverse (CD) check		C S
FBIAS CHECK	C05	Focus bias check		C S
Scurve CHECK	C06	S letter check	(X)	C
VERIFY MODE	C07	Non-volatile memory check	(X)	C
DETRK CHECK	C08	Detrack check	(X)	C
TEMP ADJUST	C09	Temperature compensation offset adjustment		A S
LDPWR ADJUST	C10	Laser power adjustment		A S
EF MO ADJUST	C11	Traverse (MO) adjustment		A S
EF CD ADJUST	C12	Traverse (CD) adjustment		A S
FBIAS ADJUST	C13	Focus bias adjustment		A S
EEP MODE	C14	Non-volatile memory control	(X) (!)	D
MANUAL CMD	C15	Command transmission	(X)	D
SVDATA READ	C16	Status display	(X)	D
ERR DP MODE	C17	Error history display, clear		S
SLED MOVE	C18	Sled check	(X)	D
ACCESS MODE	C19	Access check	(X)	D
0920 CHECK	C20	Outermost circumference check	(X)	D
HEAD ADJUST	C21	Head position check	(X)	D
CPLAY2 MODE	C22	Same functions as CPLAY MODE	(X)	D
CREC 2MODE	C23	Same functions as CREC MODE	(X)	D
ADJ CLEAR	C24	Initialization of non-volatile memory of adjustment value		A S
AG Set (MO)	C25	Auto gain output level adjustment (MO)		A S
AG Set (CD)	C26	Auto gain output level adjustment (CD)		A S
Iop Read	C27	IOP data display		C S
Iop Write	C28	IOP data write		A S
INFORMATION	C29	Microprocessing version display		C S
CPLAY MODE	C30	Continuous play mode		C A S D
CREC MODE	C31	Continuous recording mode		C A S D

Group (*)

C: Check

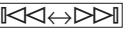

S: Service

A: Adjust

D: Develop

- For details of each adjustment mode, refer to “6. Electrical Adjustments”.
For details of “ERR DP MODE”, refer to “Self-Diagnosis Function” on page 2.
- If a different mode has been selected by mistake, press the **[MENU/NO]** button to exit that mode.
- Modes with (X) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the **[MENU/NO]** button to exit the mode immediately. Be especially careful not to set the modes with (!) as they will overwrite the non-volatile memory and reset it, and as a result, the unit will not operate normally.

5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
 - (1) Set the disc in the unit. (Whichever recordable discs or discs for playback only are available)
 - (2) Turn the  dial to display "CPLAY MODE" (C30).
 - (3) Press the  button to change the display to "CPLAY MID".
 - (4) When access completes, the display changes to "C = 0000 AD = 00".

Note: The numbers "0" displayed show you error rates and ADER.

2. Changing the parts to be played back

- (1) Press the  button during continuous playback to change the display as below.



"CPLAY MID" → "CPLAY OUT" → "CPLAY IN" —
↑

When pressed another time, the parts to be played back can be moved.

- (2) When access completes, the display changes to "C = 0000 AD = 00".

Note: The numbers "0" displayed show you error rates and ADER.

3. Ending the continuous playback mode

- (1) Press the  button. The display will change to "CPLAY MODE".
- (2) Press the  (MD) button and take out the disc.



Note: The playback start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster

MID : 300h cluster

OUT : 700h cluster

5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check)

1. Entering the continuous recording mode
 - (1) Set a recordable disc in the unit.
 - (2) Rotate the  knob to display "CREC MODE" (C31).
 - (3) Press the  button to change the display to "CREC MID".
 - (4) When access completes, the display changes to "CREC (0000)" and **REC** lights up.

Note: The numbers "0" displayed shows you the recording position addresses.

2. Changing the parts to be recorded

- (1) When the  button is pressed during continuous recording, the display changes as below.



"CREC MID" → "CREC OUT" → "CREC IN" —
↑

When pressed another time, the parts to be recorded can be changed. **REC** goes off.

- (2) When access completes, the display changes to "CREC (0000)" and **REC** lights up.

Note: The numbers "0" displayed shows you the recording position addresses.

3. Ending the continuous recording mode

- (1) Press the  button. The display changes to "CREC MODE" and **REC** goes off.
- (2) Press the  (MD) button and take out the disc.

Note 1: The recording start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster

MID : 300h cluster

OUT : 700h cluster

Note 2: The  button can be used to stop recording anytime.

Note 3: Do not perform continuous recording for long periods of time above 5 minutes.

Note 4: During continuous recording, be careful not to apply vibration.

5-3. Non-Volatile Memory Mode (EEP MODE)

This mode reads and writes the contents of the non-volatile memory.

It is not used in servicing. If set accidentally, press the  button immediately to exit it.

6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
	Stops continuous playback and continuous recording.
	The sled moves to the outer circumference only when this is pressed.
	The sled moves to the inner circumference only when this is pressed.
CLEAR	Switches between the pit and groove modes when pressed.
PLAY MODE	Switches the spindle servo mode. (CLVS ↔ CLV A)
DISPLAY/CHAR	Switches the displayed contents each time the button is pressed
(MD)	Ejects the disc
REPEAT	Exits the test mode

7. TEST MODE DISPLAYS

Each time the **[DISPLAY]** button is pressed, the display changes in the following order.

1. Mode display

Displays “TEMP ADJUST”, “CPLAYMODE”, etc.

2. Error rate display

Displays the error rate in the following way.

C = 0000 AD = 0000

C = Indicates the C1 error.

AD = Indicates ADER.

3. Address display

The address is displayed as follows. (MO: recordable disc, CD: playback only disc)

Pressing the **[CLEAR]** button switches between the groove display and pit display.

h = 0000 s = 0000 (MO pit and CD)

h = 0000 a = 0000 (MO groove)

h = Indicates the header address.

s = Indicates the SUBQ address.

a = Indicates the ADIP address.

Note: “_” is displayed when servo is not imposed.

4. Auto gain display (Not used in servicing)

The auto gain is displayed as follows.

AG = 00/00[00]

5. Detrack check display (Not used in servicing)

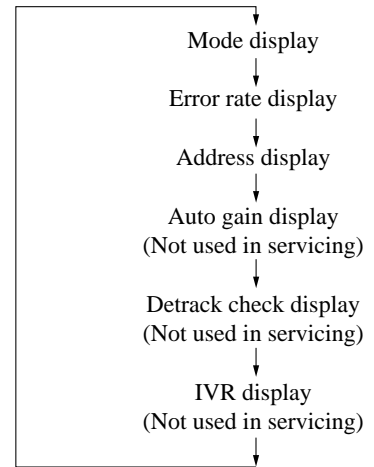
The detrack is displayed as follows.

ADR = 000000

6. IVR display (Not used in servicing)

The IVR is displayed as follows.

[00][00][00]



MEANINGS OF OTHER DISPLAYS

Display	Contents	
	When Light	When Off
▷	During continuous playback (CLV: ON)	STOP (CLV: OFF)
II	Tracking servo OFF	Tracking servo ON
REC	Recording mode ON	Recording mode OFF
SYNC	CLV low speed mode	CLV normal mode
L-SYNC	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
REPEAT	Tracking auto gain OK	
(REPEAT)1	Focus auto gain OK	
TRACK or ALL S	Pit	Groove
DISC or 1	High reflection	Low reflection
SHUFFLE	CLV-S	CLV-A
MONO	CLV LOCK	CLV UNLOCK
IT	LIMIT IN	

SECTION 5 ELECTRICAL ADJUSTMENTS

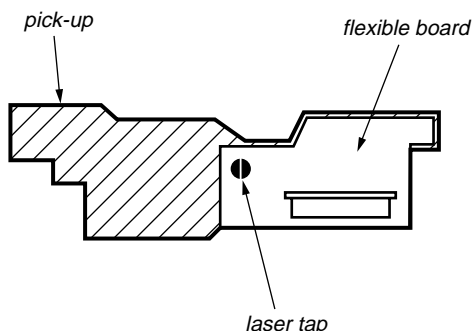
MD SECTION

1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260B)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

3. PRECAUTIONS FOR ADJUSTMENTS

- When replacing the following parts, perform the adjustments and checks with **○** in the order shown in the following table.

	Optical Pick-up	BD (MD) Board			
		IC171	D101	IC101, IC121	IC192
1. Initial setting of adjustment value	○	○	×	○	×
2. Recording of IOP information (Value written on the pick-up)	○	○	×	×	×
3. Temperature compensation offset adjustment	×	○	○	×	×
4. Laser power adjustment	○	○	×	○	○
5. Traverse adjustment	○	○	×	○	×
6. Focus bias adjustment	○	○	×	○	×
7. Error rate check	○	○	×	○	×
8. Auto gain output level adjustment	○	○	×	○	×

- Set the test mode when performing adjustments.
After completing the adjustments, exit the test mode.
Perform the adjustments and checks in "group S" of the test mode.
- Perform the adjustments to be needed in the order shown.

- Use the following tools and measuring devices.
 - Extension cable (19P) (Part No. J-2501-011-B)
Relay connector (Part No. J-2501-167-A)
(BD (CD) board CN101 to MICROCOMPUTER board CN300)
 - Extension cable (17P) (with connector)
(Part No. J-2501-167-A)
(CONNECTOR board CN701 to MICROCOMPUTER board CN301)
 - Extension cable (4P) (with connector)
(Part No. J-2501-165-A)
(LOAD MOTOR board CN713 to MICROCOMPUTER board CN302)
 - Check Disc (MD) TDYS-1
(Part No. 4-963-646-01)
 - TEST DISK (MDW-74/AU-1) (Part No. 8-892-341-41)
 - Laser power meter LPM-8001 (Part No. J-2501-046-A)
or MD Laser power meter 8010S (Part No. J-2501-145-A)
 - Oscilloscope (Measure after performing CAL of prove)
 - Digital voltmeter
 - Thermometer
 - Jig for checking BD board waveform
(Part No. : J-2501-149-A)
- When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
(VC and ground will become short-circuited)
- Using the above jig enables the waveform to be checked without the need to solder.
(Refer to Servicing Notes on page 6)
- As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

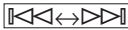

Laser power meter

When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (J-2501-145-A) instead of the conventional laser power meter is convenient.

It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of the pick-up.

4. CREATING CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check.
The following describes how to create a continuous recorded disc.

- Insert a disc (blank disc) commercially available.
- Turn the  dial to display "CREC MODE" (C31).
- Press the **ENTER/YES** button to display "CREC MID".
Display "CREC (0300)" and start to recording.
- Complete recording within 5 minutes.
- Press the **MENU/NO** button to stop recording.
- Press the  (MD) button and take out the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

Note :

- Be careful not to apply vibration during continuous recording.

5. CHECK PRIOR TO REPAIRS

These checks are performed before replacing parts according to “approximate specifications” to determine the faulty locations. For details, refer to “Checks Prior to Parts Replacement and Adjustments”. (See page 10)

5-1. Temperature Compensation Offset Check

When performing adjustments, the set internal temperature and room temperature of 22 °C to 28 °C.

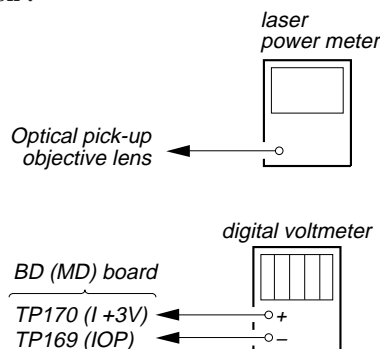
Checking Procedure:

1. Turn the $\lll \leftrightarrow \ggg$ dial to display “TEMP CHECK”.
2. Press the ENTER/YES button.
3. “T=@@ (##) [OK]” should be displayed. If “T=@@ (##) [NG]” is displayed, it means that the results are bad.
(@@ indicates the current value set, and ## indicates the value written in the non-volatile memory)

5-2. Laser Power Check

Before checking, check the IOP value of the optical pick-up.
(Refer to 7. Recording and Displaying IOP Information)

Connection :



Checking Procedure:

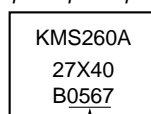
1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the \lll button or \ggg button to move the optical pick-up)
Connect the digital volt meter to TP170 (I+3V) and TP169 (IOP).
2. Then, turn the $\lll \leftrightarrow \ggg$ dial to display “LDPWR CHECK” (C02).
3. Press the ENTER/YES button once to display “LD 0.9 mW \$ $\square\square\square$ ”. Check that the reading of the laser power meter become 0.84 to 0.92 mW.
4. Press the ENTER/YES button once more to display “LD 7.0 mW \$ $\square\square\square$ ”. Check that the reading the laser power meter and digital volt meter satisfy the specified value.

Specifications:

Laser power meter reading: 7.0 ± 0.2 mW

Digital voltmeter reading : Optical pick-up displayed value $\pm 10\%$

(Optical pick-up label)



IOP=56.7 mA in this case

$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

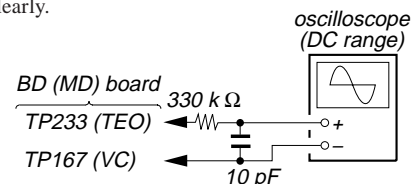
5. Press the MENU/NO button to display “LDPWR CHECK” and stop the laser emission.
(The MENU/NO button is effective at all times to stop the laser emission)

Note 1: After step 4, each time the ENTER/YES button is pressed, the display will be switched between “LD 0.7 mW \$ $\square\square\square$ ”, “LD 6.2 mW \$ $\square\square\square$ ”, and “LD Wp ホセ イ \$ $\square\square\square$ ”. Nothing needs to be performed here.

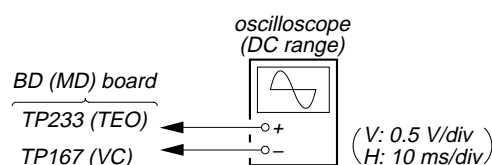
5-3. Traverse Check

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



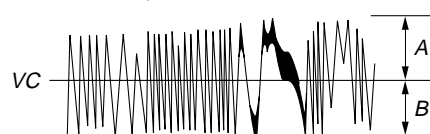
Connection :



Checking Procedure:

1. Connect an oscilloscope to TP233 (TEO) and TP167 (VC).
2. Load a disc (any available on the market). (Refer to Note 1.)
3. Press the \ggg button and move the optical pick-up outside the pit.
4. Turn the $\lll \leftrightarrow \ggg$ dial to display “EF MO CHECK” (C03).
5. Press the ENTER/YES button to display “EFB = $\square\square$ MO-R”.
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not turn the $\lll \leftrightarrow \ggg$ dial. (Read power traverse checking)

(Traverse Waveform)

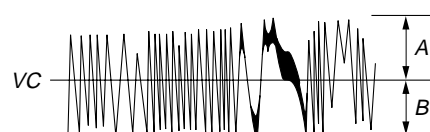


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the ENTER/YES button to display “EFB = $\square\square$ MO-W”.
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not turn the $\lll \leftrightarrow \ggg$ dial. (Write power traverse checking)

(Traverse Waveform)

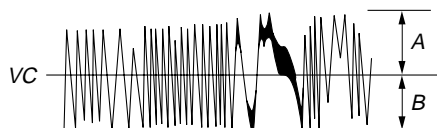


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **[ENTER/YES]** button to display “EFB = **MO-P**”. Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not turn the **[<<=>>>]** dial.

(Traverse Waveform)

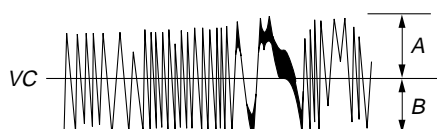


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{IA - BI}{2(A + B)} \times 100$$

11. Press the **[ENTER/YES]** button to display “EF MO CHECK”. The disc stops rotating automatically.
12. Press the **[MD]** button and take out the disc.
13. Load the check disc (MD) TDYS-1.
14. Turn the **[<<=>>>]** dial to display “EF CD CHECK” (C04).
15. Press the **[ENTER/YES]** button to display “EFB = **CD**”. Servo is imposed automatically.
16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not turn the **[<<=>>>]** dial.

(Traverse Waveform)



Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{IA - BI}{2(A + B)} \times 100$$

17. Press the **[ENTER/YES]** button to display “EF CD CHECK”.
18. Press the **[MD]** button and take out the check disc (MD) TDYS-1.

5-4. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a test disk (MDW-74/AU-1).
2. Turn the **[<<=>>>]** dial to display “CPLAY MODE” (C30).
3. Press the **[ENTER/YES]** button to display “CPLAY MID”.
4. Press the **[MENU/NO]** button when “C = **AD** = **AD**” is displayed.
5. Turn the **[<<=>>>]** dial to display “FBIAS CHECK” (C05).
6. Press the **[ENTER/YES]** button to display “**C** = **AD** = **AD**”. The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after “c =” indicate the focus bias value. Check that the C1 error is below 220 and ADER is below 2.
7. Press the **[ENTER/YES]** button to display “**C** = **AD** = **AD**”. Check that the C1 error is below 220 and ADER is below 2.
8. Press the **[ENTER/YES]** button to display “**C** = **AD** = **AD**”. Check that the C1 error is below 220 and ADER is below 2.
9. Press the **[MENU/NO]** button, next press the **[MD]** button and take out the test disc.

5-5. C PLAY Checking

MO Error Rate Check

Checking Procedure :

1. Load a test disk (MDW-74/AU-1).
2. Turn the **[<<=>>>]** dial to display “CPLAY MODE” (C30).
3. Press the **[ENTER/YES]** button to display “CPLAY MID”.
4. The display changes to “C = **AD** = **AD**”.
5. If the C1 error rate is below 80, check that ADER is below 2.
6. After press the **[MENU/NO]** button and stop playback, press the **[MD]** button and take out test disc.

CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Turn the **[<<=>>>]** dial to display “CPLAY MODE” (C30).
3. Press the **[ENTER/YES]** button twice to display “CPLAY MID”.
4. The display changes to “C = **AD** = **AD**”.
5. Check that the C1 error rate is below 50.
6. Press the **[MENU/NO]** button, stop playback, press the **[MD]** button and take out the test disc.

5-6. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

Checking Procedure :

1. Insert a recordable disc (blank disc) into the unit.
2. Turn the **[<<=>>>]** dial to display “CREC MODE” (C31).
3. Press the **[ENTER/YES]** button to display the “CREC MID”.
4. When recording starts, “**REC**” is displayed, this becomes “CREC (@ @ @ @)” (@ @ @ @ indicates the address), and recording starts.
5. About 1 minute later, press the **[MENU/NO]** button to stop continuous recording.
6. Turn the **[<<=>>>]** dial to display “CPLAY MODE” (C30).
7. Press the **[ENTER/YES]** button to display “CPLAY MID”.
8. “C = **AD** = **AD**” will be displayed.
9. Check that the C1 error becomes below 80 and the AD error below 2.
10. Press the **[MENU/NO]** button to stop playback, and press the **[MD]** button and take out the disc.

6. INITIAL SETTING OF ADJUSTMENT VALUE



Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to “3. Precautions on Adjustments” and execute the initial setting before the adjustment as required.



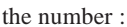


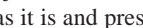
Setting Procedure :

1. Turn the  dial to display “ADJ CLEAR” (C24).
2. Press the  button. “Complete!” will be displayed momentarily and initial setting will be executed, after which “ADJ CLEAR” will be displayed.


7. RECORDING AND DISPLAYING THE IOP INFORMATION

The IOP data can be recorded in the non-volatile memory. The IOP value on the label of the optical pickup and the IOP value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure :

1. Turn the  dial to display “Iop Write” (C28), and press the  button.
2. The display becomes “Ref=@@.@” (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the IOP value written on the optical pick-up.
To select the number : Turn the  dial
To select the digit : Press the  button
4. When the  button is pressed, the display becomes “Meas=@@.@” (@ is an arbitrary number).
5. As the adjustment results are recorded for the step 4. value. Leave it as it is and press the  button.
6. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write”.

Display Procedure :

1. Turn the  dial to display “Iop.Read”(C27).
2. “@@.@/##.#” is displayed and the recorded contents are displayed.
@@.@ indicates the IOP value labeled on the pick-up.
##.# indicates the IOP value after adjustment

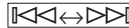


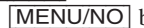

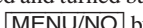
8. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

Note :

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Procedure :

1. Turn the  dial to display “TEMP ADJUST” (C09).
2. Press the  button.
3. “TEMP = 00 [OK]” and the current temperature data will be displayed.
4. To save the data, press the  button. When not saving the data, press the  button.
5. When the  button is pressed, “TEMP = 00 SAVE” will be displayed and turned back to “TEMP ADJUST” display then. When the  button is pressed, “TEMP ADJUST” will be displayed immediately.

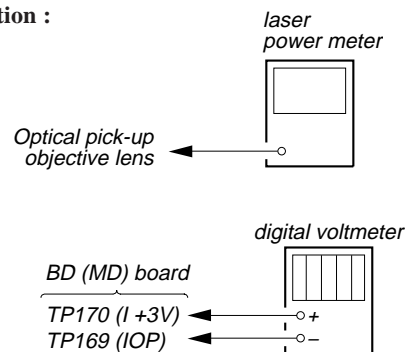
Specified Value :

The “TEMP = 00” should be within “E0 to EF”, “F0 to FF”, “00 to 0F”, “10 to 1F” and “20 to 2F”.



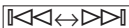




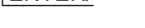
9. LASER POWER ADJUSTMENT

Check the IOP value of the optical pick-up before adjustments. (Refer to 7. Recording and Displaying IOP Information)

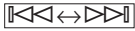




Connection :



Adjusting Procedure :

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the  button or  button to move the optical pick-up.)
Connect the digital volt meter to TP170 (I+3V) and TP169 (IOP).
2. Turn the  dial to display “LDPWR ADJUST” (C10).
(Laser power : For adjustment)
3. Press the  button to display “LD 0.9 mW \$ 00”.
4. Turn the  dial so that the reading of the laser power meter becomes 0.85 to 0.91 mW. Press the  button after setting the range dial of the laser power meter, and save the adjustment results. (“LD SAVE \$ 00” will be displayed for a moment)
5. Then “LD 7.0 mW \$ 00” will be displayed.
6. Turn the  dial so that the reading of the laser power meter becomes 6.9 to 7.1 mW and press the  button to save it.

Note: Do not perform the emission with 7.0 mW more than 15 seconds continuously.

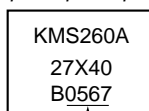
7. Then, turn the  dial to display “LDPWR CHECK” (C02).
8. Press the  button once to display “LD 0.9 mW \$ ”. Check that the reading of the laser power meter become 0.85 to 0.91 mW.
9. Press the  button once more to display “LD 7.0 mW \$ ”. Check that the reading the laser power meter and digital volt meter satisfy the specified value.
Note down the digital voltmeter reading value.

Specifications:

Laser power meter reading: 7.0 ± 0.1 mW



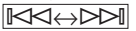


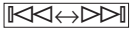


Digital voltmeter reading : Optical pick-up displayed value $\pm 10\%$





(Optical pick-up label)



IOP=56.7 mA in this case

$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

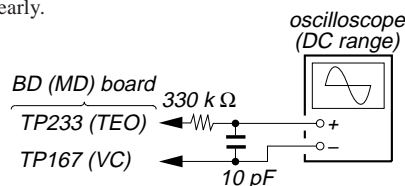
10. Press the  button to display “LDPWR CHECK” and stop the laser emission.
(The  button is effective at all times to stop the laser emission)
11. Turn the  dial to display “Iop.Write”(C28).
12. Press the  button. When the display becomes “Ref=@ @ @ .@” (@ is an arbitrary number), press the  button to display “Measu=@ @ @ .@” (@ is an arbitrary number).
13. The numbers which can be changed will blink. Input the IOP value noted down at step 9.
To select the number : Turn the  dial
To select the digit : Press the  button
14. When the  button is pressed, “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write”.

Note 1: After step 9, each time the  button is pressed, the display will be switched between “LD 0.7 mW \$ ”, “LD 6.2 mW \$ ”, and “LD Wp ホセイ \$ ”. Nothing needs to be performed here.

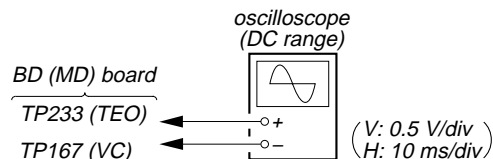
10. TRAVERSE ADJUSTMENT

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.









Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



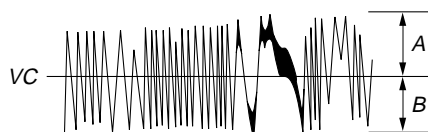
Connection :






Adjusting Procedure :

1. Connect an oscilloscope to TP233 (TEO) and TP167 (VC).
2. Load a disc (any available on the market). (Refer to Note 1)
3. Press the  button and move the optical pick-up outside the pit.
4. Turn the  dial to display “EF MO ADJUS” (C10).
5. Press the  button to display “EFB =  MO-R”.
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Turn the  dial so that the waveform of the oscilloscope becomes the specified value.
(When the  dial is turned, the  of “EFB =  ” changes and the waveform transforms)
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.
(Read power traverse adjustment)

(Traverse Waveform)

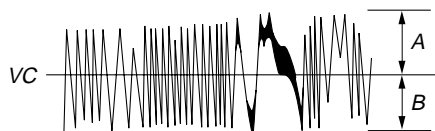


Specification $A = B$

7. Press the  button and save the result of adjustment to the non-volatile memory. (“EFB =  SAV” will be displayed for a moment. Then “EFB =  MO-W” will be displayed)

8. Turn the $\lll \leftrightarrow \ggg$ dial so that the waveform of the oscilloscope becomes the specified value.
(When the $\lll \leftrightarrow \ggg$ dial is turned, the \square of "EFB- \square " changes and the waveform transforms)
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.
(Write power traverse adjustment)

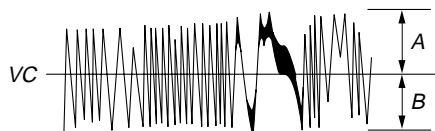
(Traverse Waveform)



Specification A = B

9. Press the \square (ENTER/YES) button, and save the adjustment results in the non-volatile memory. ("EFB = \square SAVE" will be displayed for a moment)
10. "EFB = \square MO-P". will be displayed.
The optical pick-up moves to the pit area automatically and servo is imposed.
11. Turn the $\lll \leftrightarrow \ggg$ dial until the waveform of the oscilloscope becomes to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

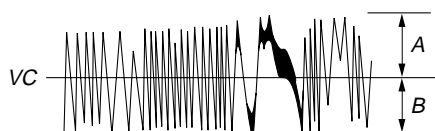
(Traverse Waveform)



Specification A = B

12. Press the \square (ENTER/YES) button, and save the adjustment results in the non-volatile memory. ("EFB = \square SAVE" will be displayed for a moment)
Next "EF MO ADJUST" is displayed. The disc stops rotating automatically.
13. Press the \square (MD) button and take out the disc.
14. Load the check disc (MD) TDYS-1.
15. Turn the $\lll \leftrightarrow \ggg$ dial to display "EF CD ADJUST" (C12).
16. Press the \square (ENTER/YES) button to display "EFB = \square CD".
Servo is imposed automatically.
17. Turn the $\lll \leftrightarrow \ggg$ dial so that the waveform of the oscilloscope becomes to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)



Specification A = B

18. Press the \square (ENTER/YES) button, display "EFB = \square SAVE" for a moment and save the adjustment results in the non-volatile memory.
Next "EF CD ADJUST" will be displayed.
19. Press the \square (MD) button and take out the check disc (MD) TDYS-1.

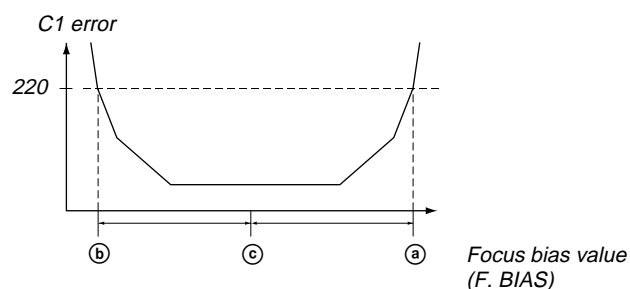
11. FOCUS BIAS ADJUSTMENT

Adjusting Procedure :

1. Load a test disk (MDW-74/AU-1).
2. Turn the $\lll \leftrightarrow \ggg$ dial to display "CPLAY MODE" (C30).
3. Press the \square (ENTER/YES) button to display "CPLAY MID".
4. Press the \square (MENU/NO) button when "C = \square AD = \square " is displayed.
5. Turn the $\lll \leftrightarrow \ggg$ dial to display "FBIAS ADJUST" (C13).
6. Press the \square (ENTER/YES) button to display " \square a = \square ".
The first four digits indicates the C1 error rate, the two digits after "/" indicates ADER, and the 2 digits after "a =" indicates the focus bias value.
7. Turn the $\lll \leftrightarrow \ggg$ dial in the clockwise and find the focus bias value at which the C1 error rate becomes 220. (Refer to Note 2)
8. Press the \square (ENTER/YES) button and display " \square b = \square ".
9. Turn the $\lll \leftrightarrow \ggg$ dial in the counterclockwise and find the focus bias value at which the C1 error rate becomes 220.
10. Press the \square (ENTER/YES) button to display " \square c = \square ".
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the \square (ENTER/YES) button.
12. If the " \square " in " \square - \square - \square (\square)" is above 20, press the \square (ENTER/YES) button.
If below 20, press the \square (MENU/NO) button and repeat the adjustment from step 2.
13. Press the \square (MD) button and take out the test disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points ① and ② in the following figure using the above adjustment. The focal point position ③ is automatically calculated from points ① and ②.





Note 2: As the C1 error rate changes, perform the adjustment using the average value.



12. ERROR RATE CHECK





12-1. CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Turn the  dial to display "CPLAY MODE" (C30).
3. Press the  button to display "CPLAY MID".
4. The display changes to "C = 0000 AD = 00".
5. Check that the C1 error rate is below 20.
6. Press the  button to stop playback and press the  (MD) button and take out the test disc.

12-2. MO Error Rate Check








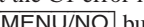

Checking Procedure :

1. Load a test disc (MDW-74/AU-1).
2. Turn the  dial to display "CPLAY MODE" (C30).
3. Press the  button to display "CPLAY MID".
4. The display changes to "C1 = 0000 AD = 00".
5. If the C1 error rate is below 50, check that ADER is below 2.
6. Press the  button to stop playback and press the  (MD) button and take out the test disc.

13. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

Checking Procedure :

1. Load a test disc (MDW-74/AU-1).
2. Turn the  dial to display "CPLAY MODE" (C30).
3. Press the  button to display "CPLAY MID".
4. Press the  button when "C = 0000 AD = 00" is displayed.
5. Turn the  dial to display "FBIAS CHECK" (C05).
6. Press the  button to display "0000/00 c = 00".
The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "c =" indicate the focus bias value.
Check that the C1 error is below 50 and ADER is below 2.
7. Press the  button to display "0000/00 b = 00".
Check that the C1 error is below 220 and ADER is below 2.
8. Press the  button to display "0000/00 a = 00".
Check that the C1 error is below 220 and ADER is below 2.
9. Press the  button, next press the  (MD) button and take out the continuously recorded disc.




Note 1: If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

14. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the pickup is replaced. If the adjustment results becomes "Adjust NG!", the pickup may be faulty or the servo system circuits may be abnormal.




14-1. CD Auto Gain Control Output Level Adjustment

Adjusting Procedure :

1. Load a check disc (MD) TDYS-1.
2. Turn the  dial to display "AG Set (CD)" (C26).
3. When the  button is pressed, the adjustment will be performed automatically.
"Complete!!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)".
4. Press the  (MD) button and take out the disc.

14-2. MO Auto Gain Control Output Level Adjustment

Adjusting Procedure :

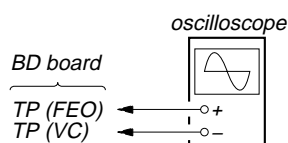
1. Load a test disc (MDW-74/AU-1) for recording.
2. Turn the  dial to display "AG Set (MO)" (C25).
3. When the  button is pressed, the adjustment will be performed automatically.
"Complete!!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)".
4. Press the  (MD) button and take out the disc.

CD SECTION

Note:

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10 MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Use the following extension cables and relay connector.
 - Extension cable (19P) (Part No. J-2501-011-B)
 - Relay connector (Part No. J-2501-167-A)
 - (BD (CD) board CN101 to MICROCOMPUTER board CN300)
 - Extension cable (17P) (with connector) (Part No. J-2501-167-A)
 - (CONNECTOR board CN701 to MICROCOMPUTER board CN301)
 - Extension cable (4P) (with connector) (Part No. J-2501-165-A)
 - (LOAD MOTOR board CN713 to MICROCOMPUTER board CN302)

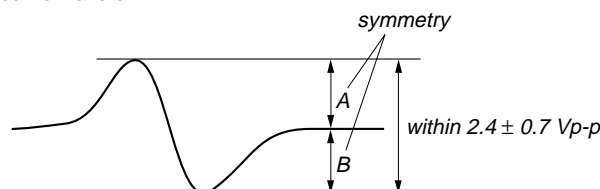
1. S-CURVE CHECK



Procedure:

1. Connect oscilloscope to TP (FEO).
2. Connect between TP (FEO) and TP (VC) by lead wire.
3. Connect between TP (AGCCON) and GND by lead wire.
4. Turn the power ON.
5. Load a disc (YEDS-18) and turn the power ON. again and actuate the focus search. (Actuate the focus search when disc tray is moving in and out)
6. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

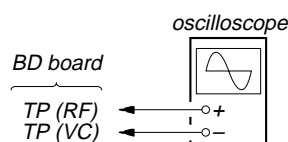
S-curve waveform



7. After check, remove the lead wire connected in step 2.

Note: • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

2. RF LEVEL CHECK

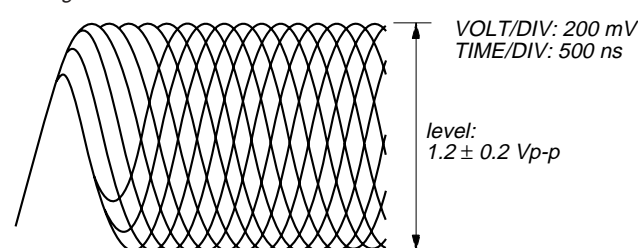


Procedure:

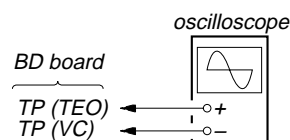
1. Connect oscilloscope to TP (RF).
2. Turn the power ON.
3. Load a disc (YEDS-18) and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

RF signal waveform



3. E-F BALANCE (TRAVERSE) CHECK (WITHOUT REMOTE COMMANDER)

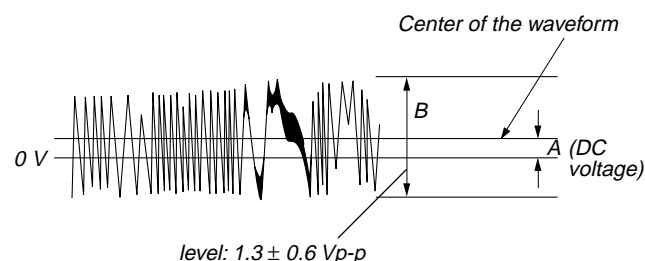


Procedure:

1. Connect lead wire to TP308 (ADJ) on the MICROCOMPUTER board.
2. Connect oscilloscope to TP (TEO) on the BD (CD) board.
3. Turn the set ON.
4. Connect lead wire in step1. to GND.
5. Load a disc (YEDS-18) and playback.
6. Press the **[DISPLAY]** button to the tracking servo and the slewing servo is turned OFF.
7. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform. Confirm the following:

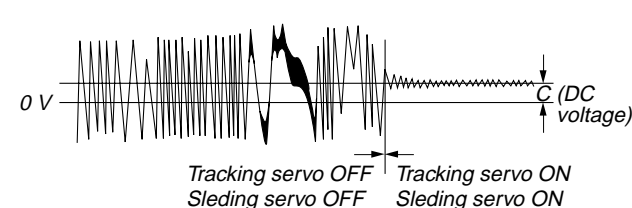
$$\frac{A}{B} \times 100 = \text{less than } \pm 22 (\%)$$

Traverse waveform



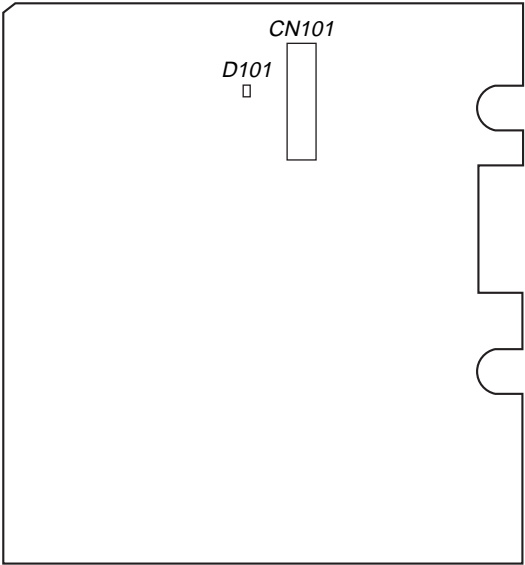
8. Press the **[DISPLAY]** button to the tracking servo and the slewing servo is turned ON. Confirm the C (DC voltage) is almost equal to the A (DC voltage) in step 7.

Traverse waveform

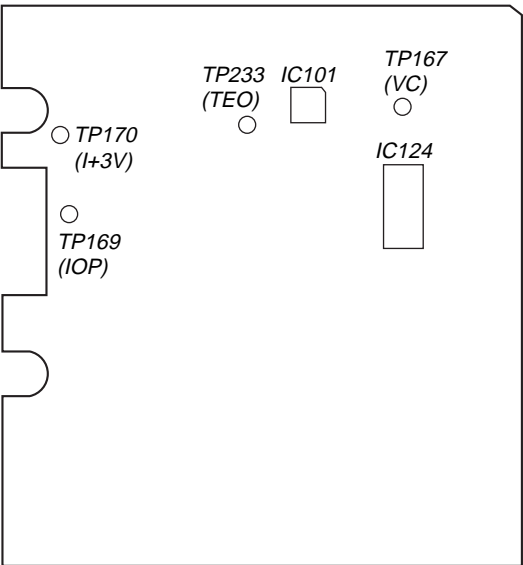


Connecting points:

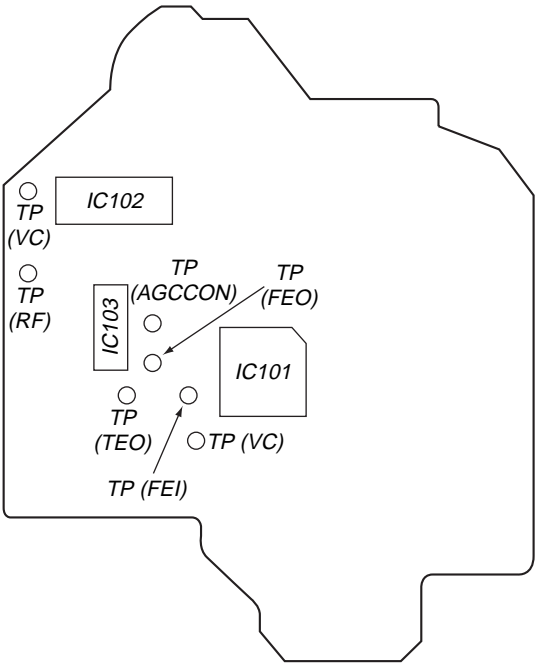
[BD (MD) Board] (Side A)



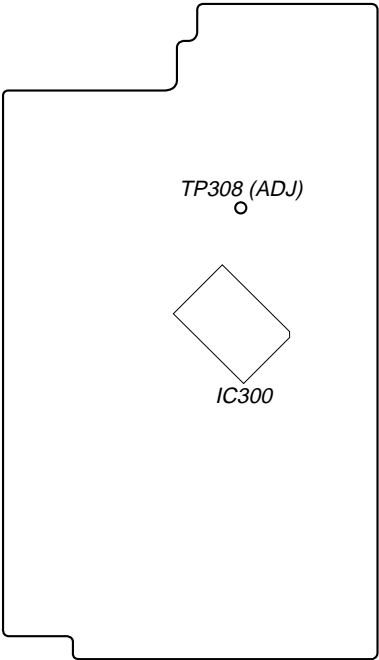
[BD (MD) Board] (Side B)



[BD (CD) Board] (Side B)

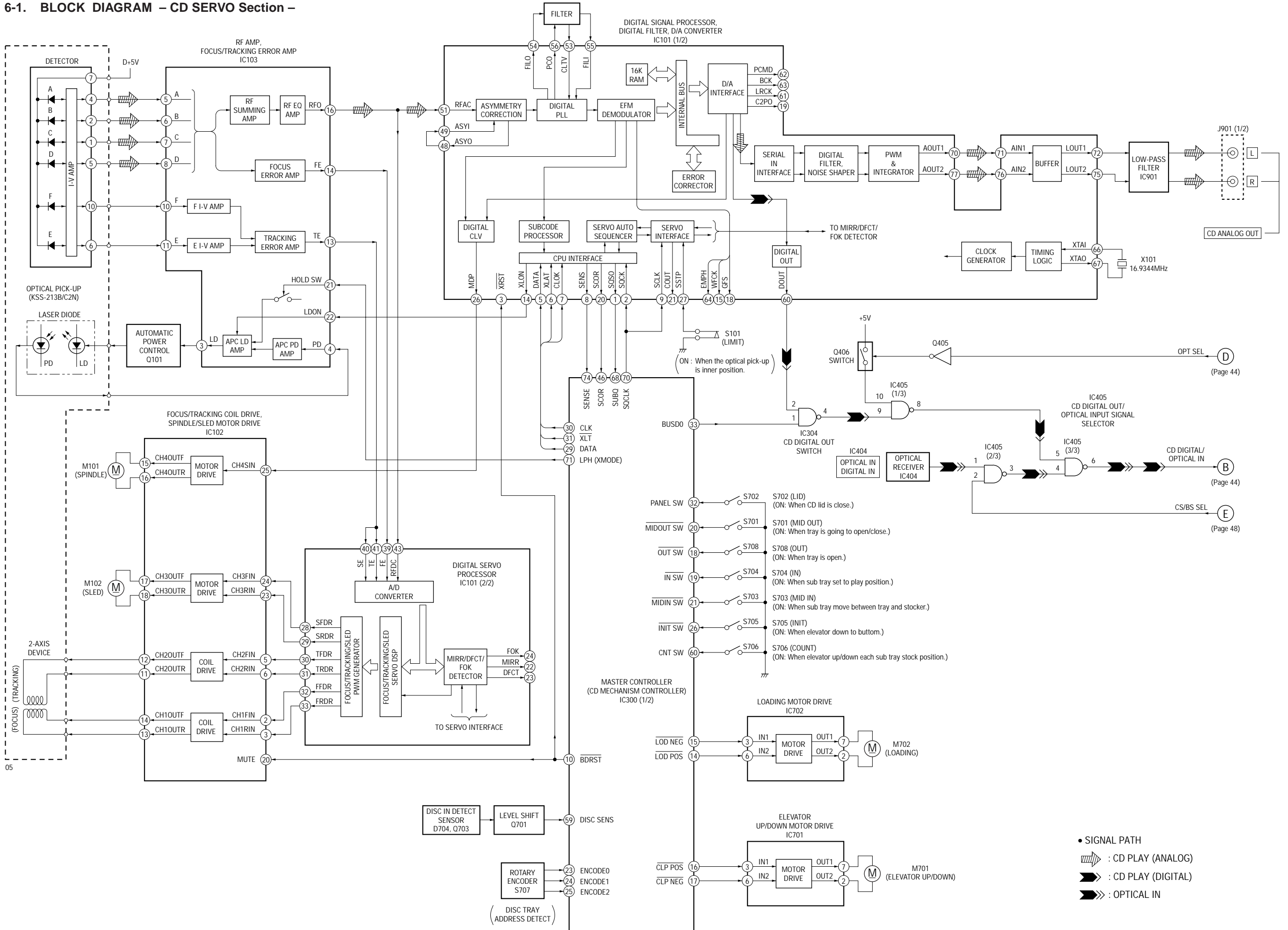


[MICROCOMPUTER Board] (Side B)

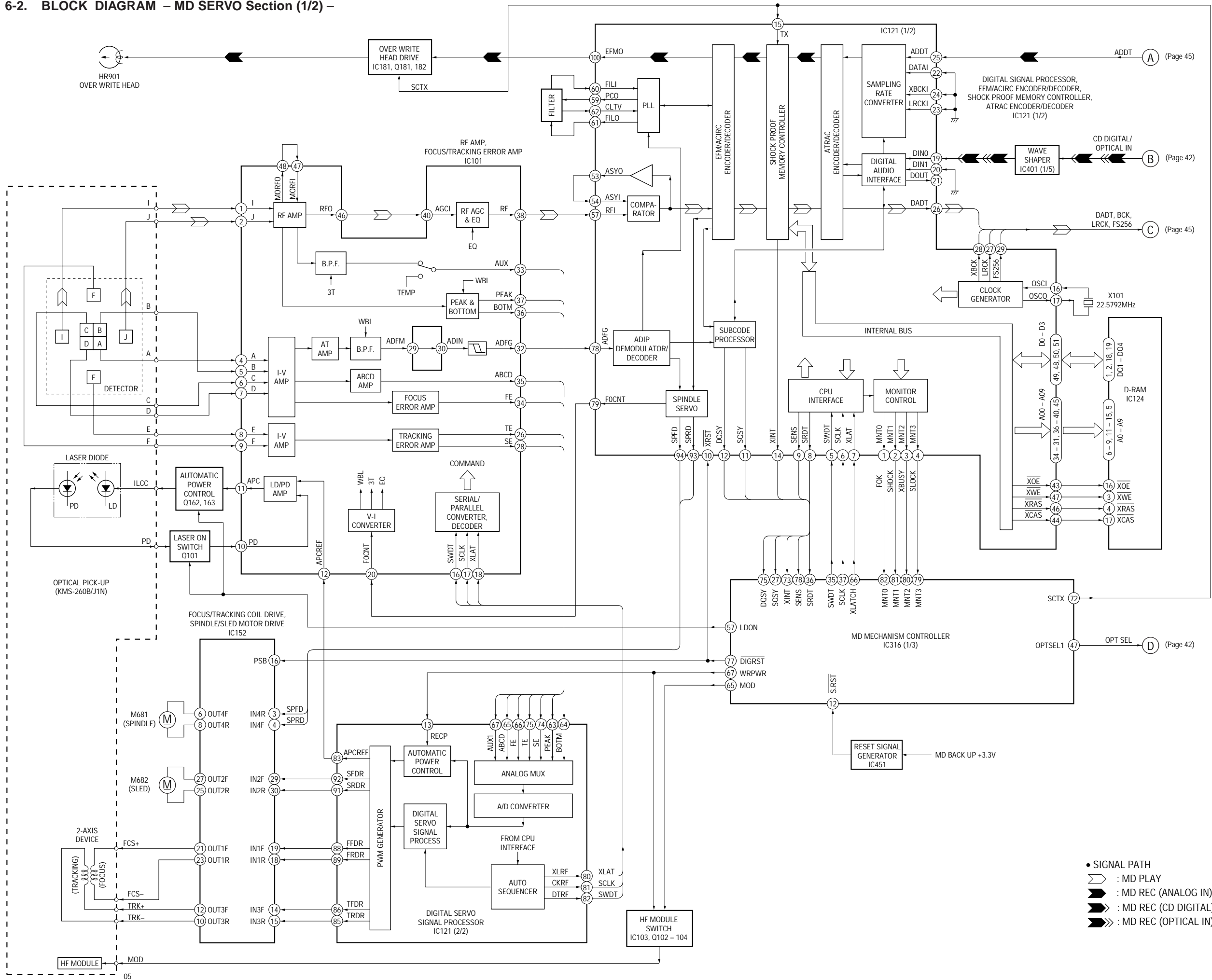


SECTION 6 DIAGRAMS

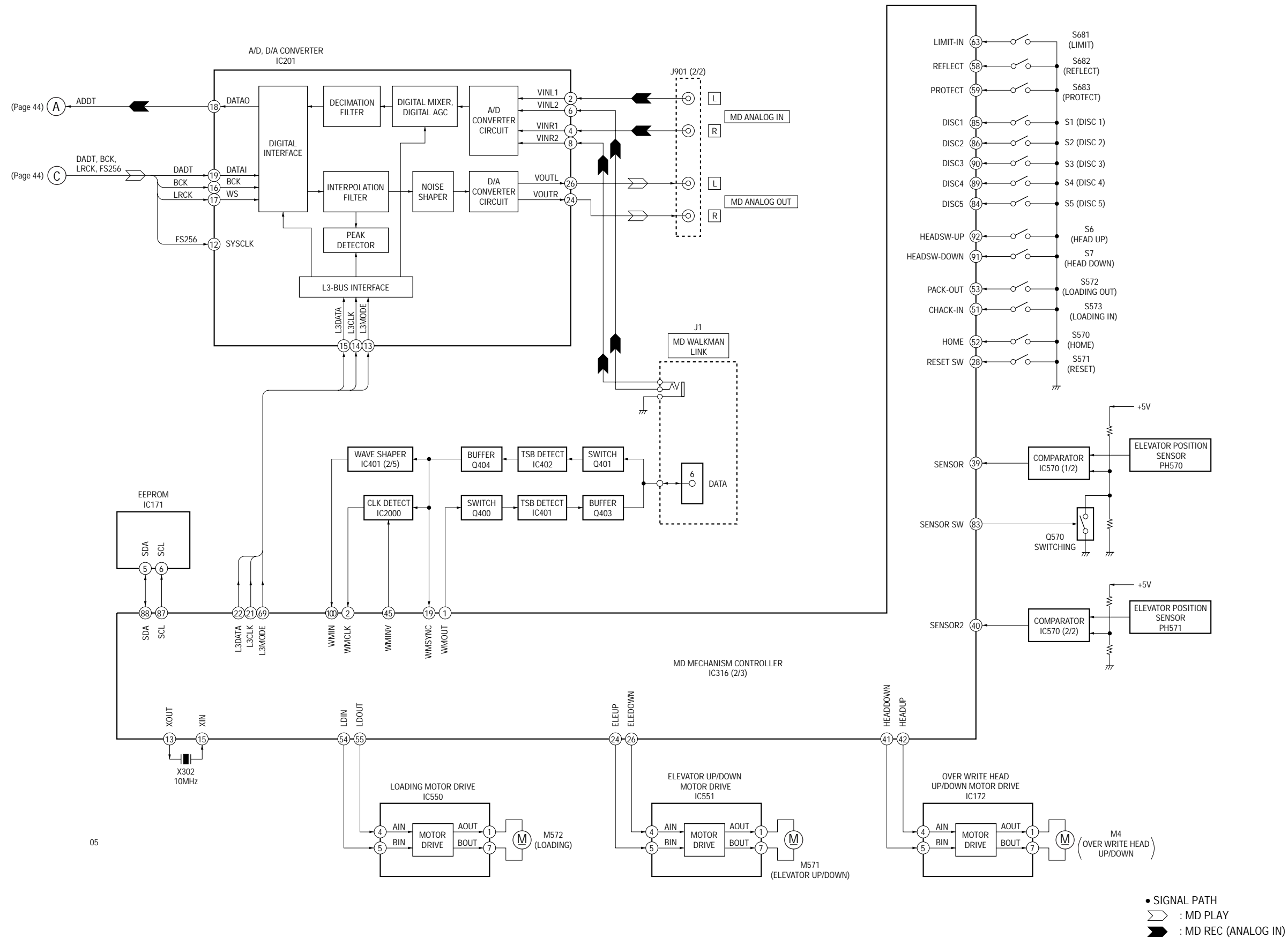
6-1. BLOCK DIAGRAM – CD SERVO Section –



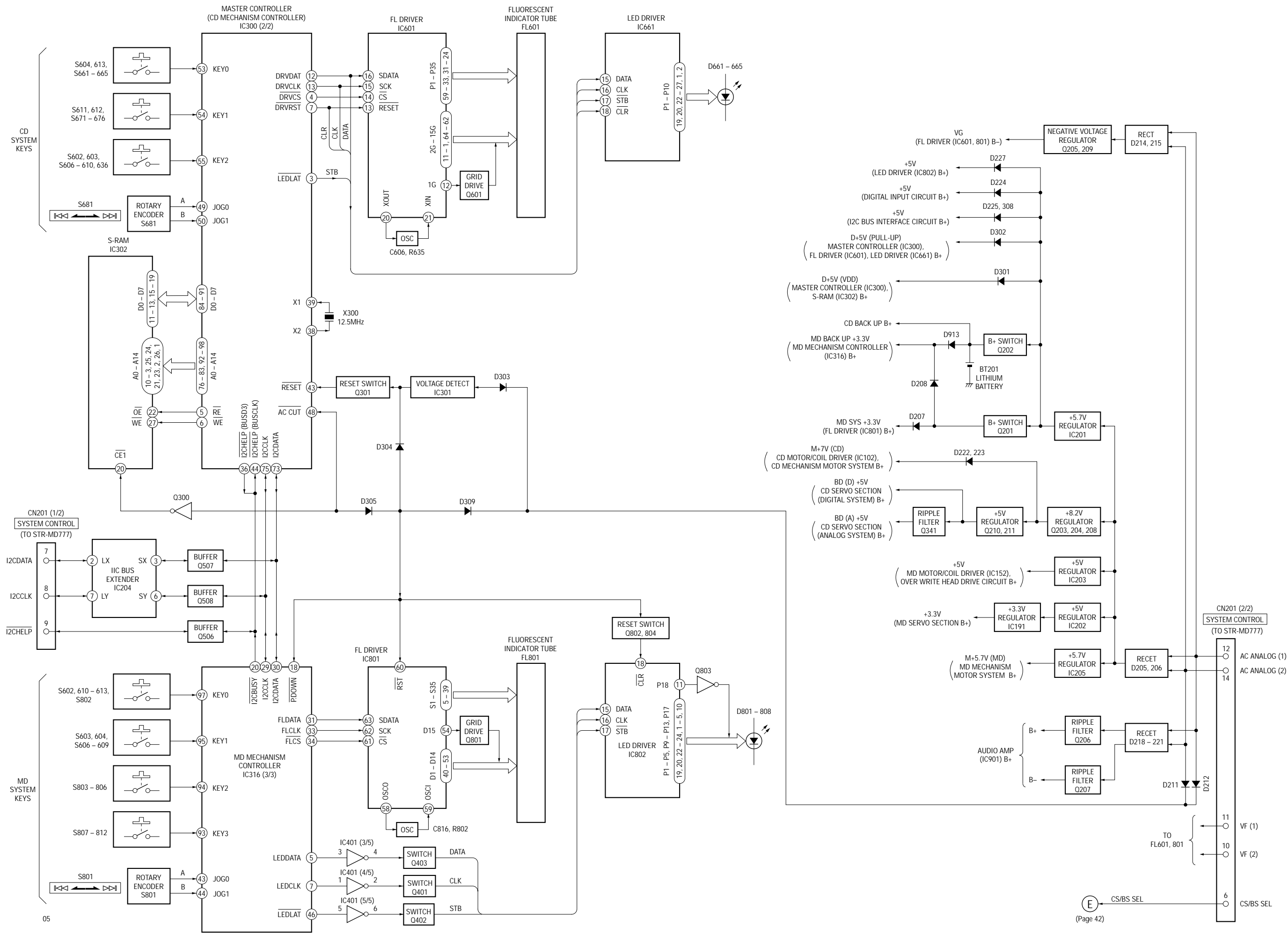
6-2. BLOCK DIAGRAM – MD SERVO Section (1/2) –



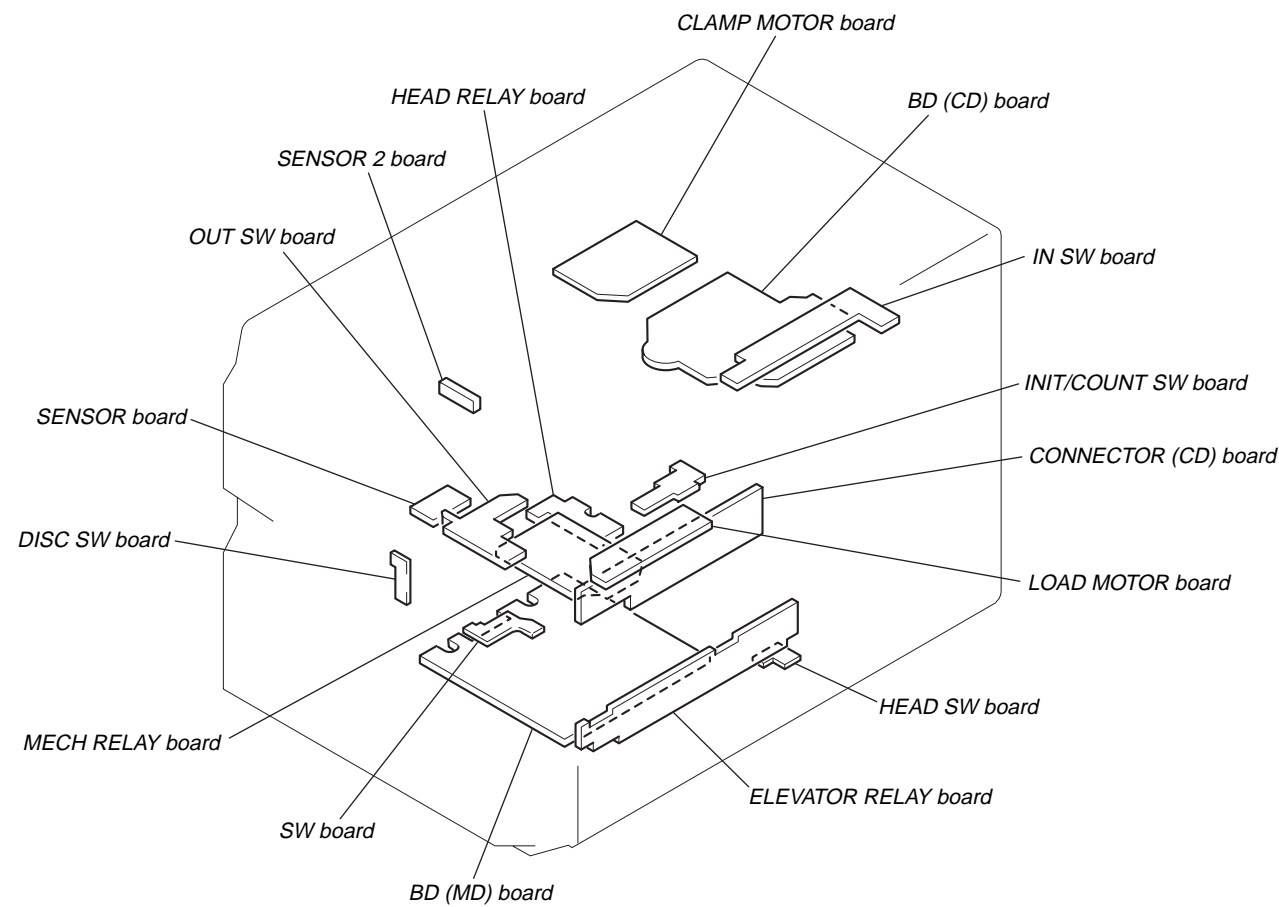
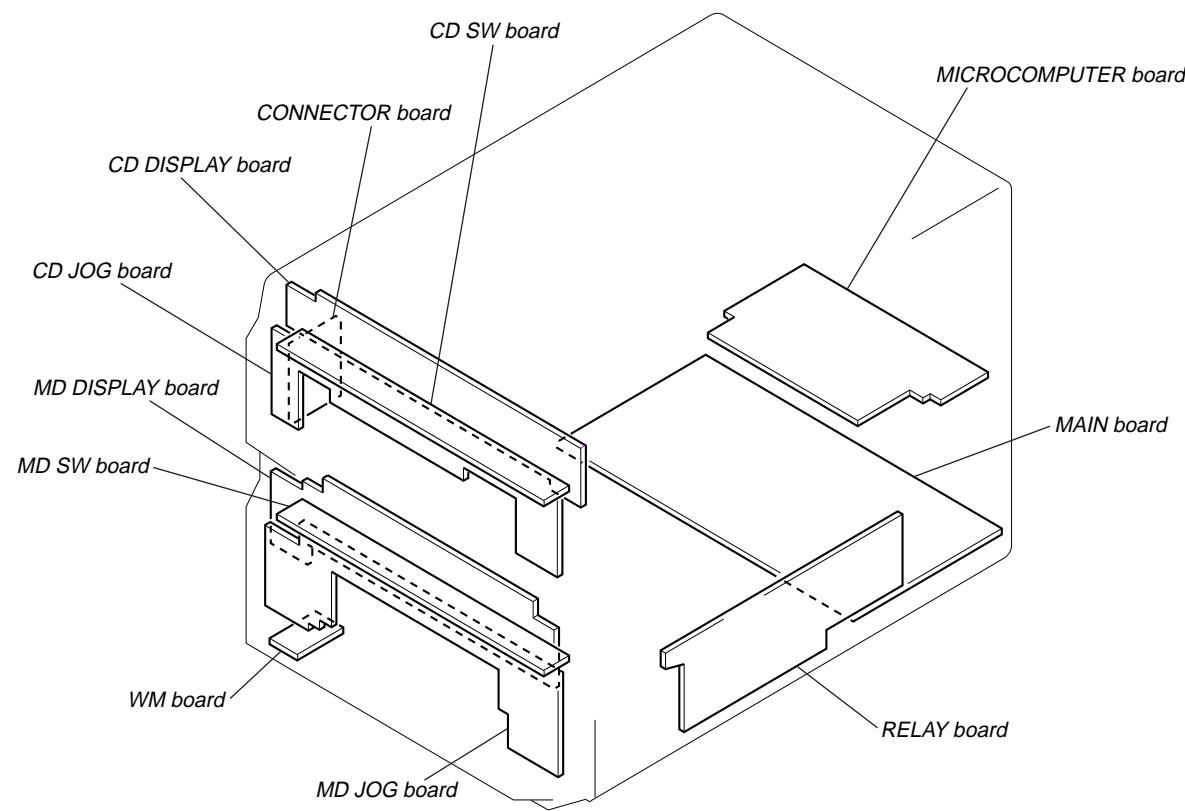
6-3. BLOCK DIAGRAM – MD SERVO Section (2/2) –



6-4. BLOCK DIAGRAM – DISPLAY/POWER SUPPLY Section –



• Circuit Boards Location



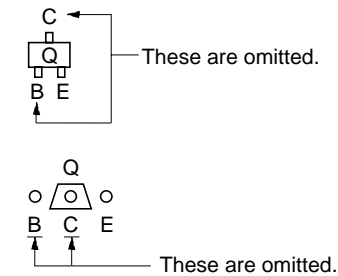
6-5. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)

Caution:
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
(Side B)
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Side A)

- Indication of transistor.



Note on Schematic Diagram:

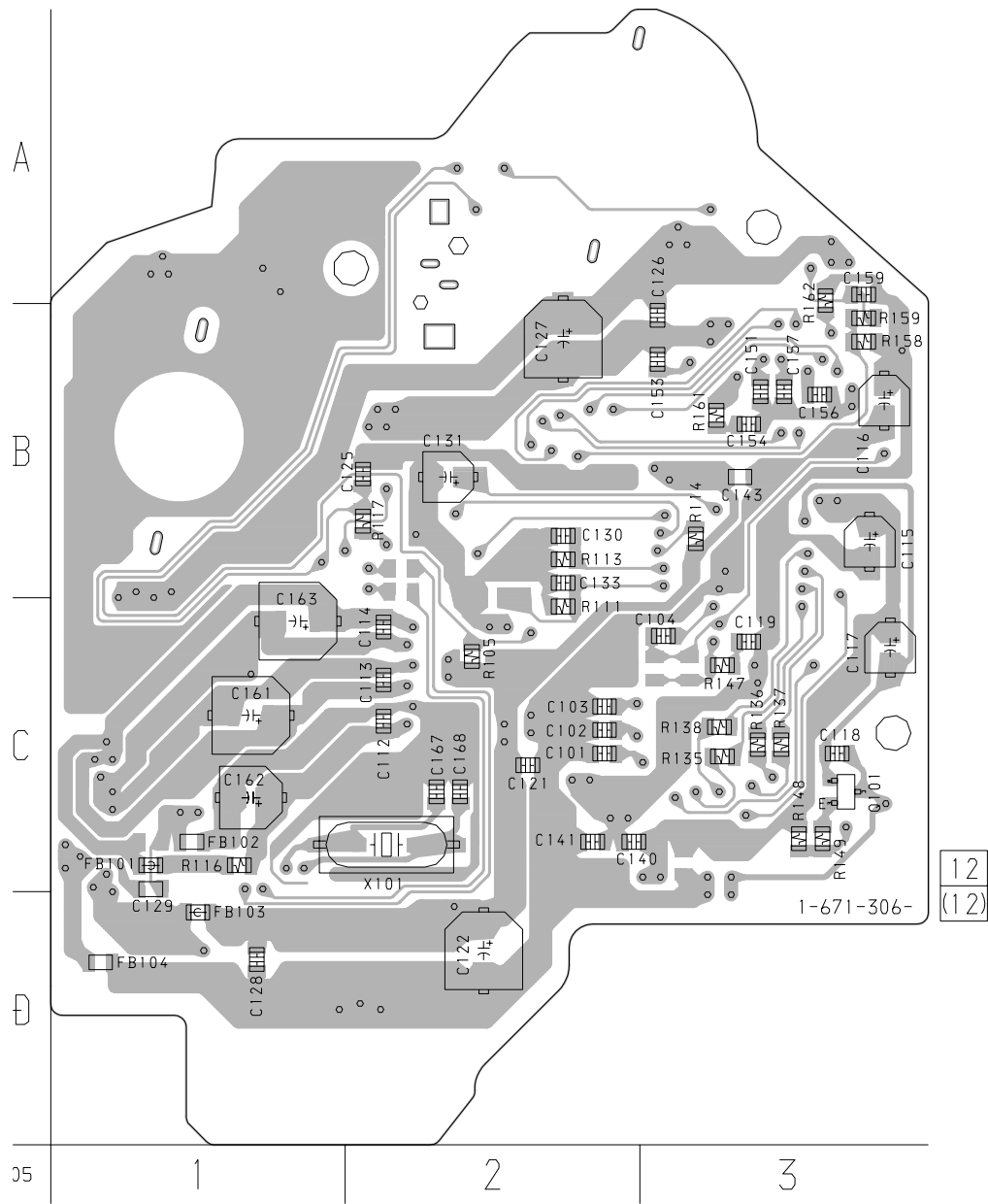
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- △ : internal component.
- □ : panel designation.

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- B- : B- Line.
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
 - ⇒ : CD PLAY (ANALOG)
 - ⇒ : CD PLAY (DIGITAL)
 - : MD PLAY
 - ⇒ : MD REC (ANALOG IN)
 - ⇒ : MD REC (OPTICAL IN)

6-6. PRINTED WIRING BOARD – BD (CD) Section – • See Page 49 for Circuit Boards Location.

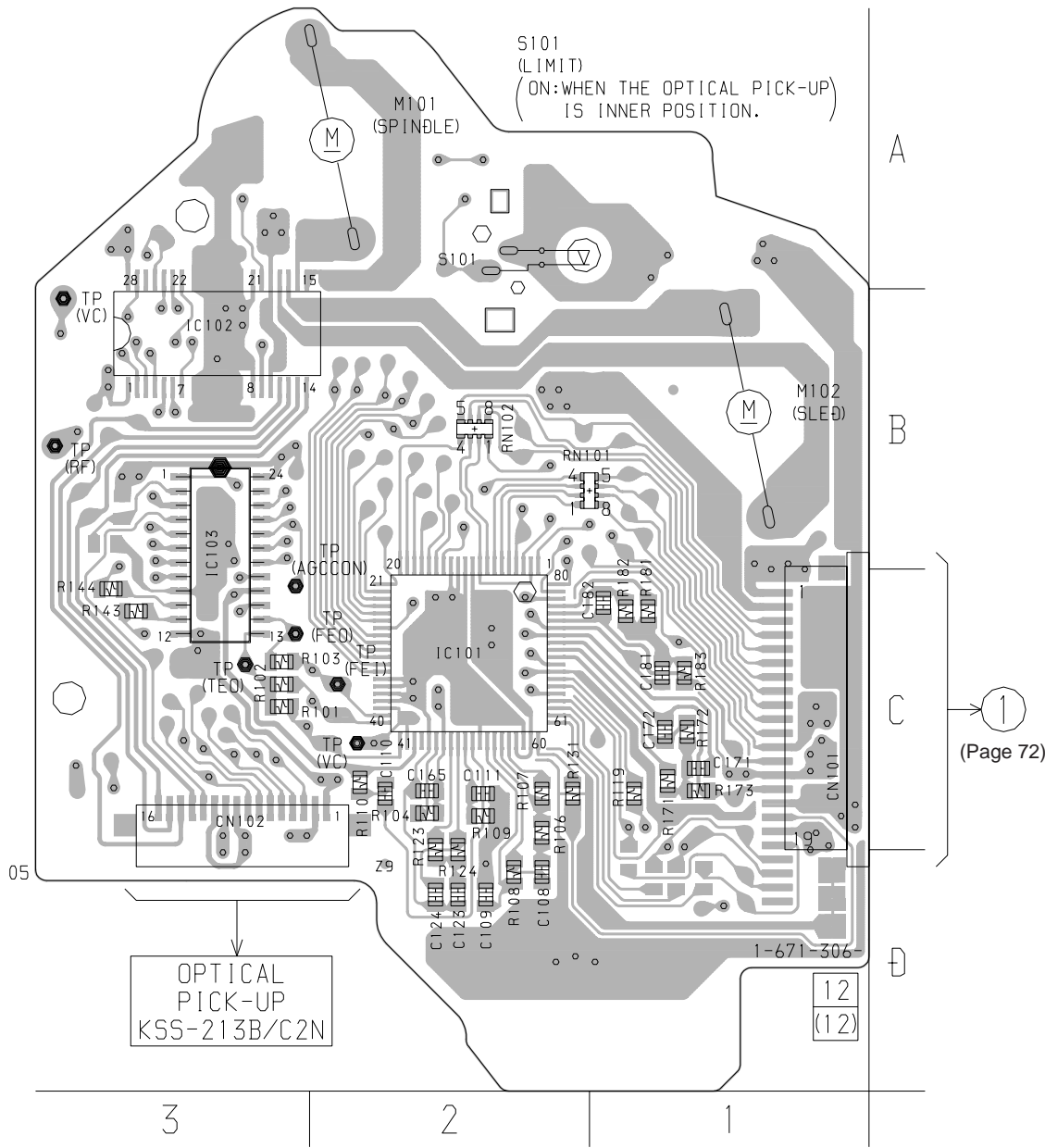
【BD (CD) BOARD】(SIDE A)



• Semiconductor Location (SIDE A)

Ref. No.	Location
Q101	C-3

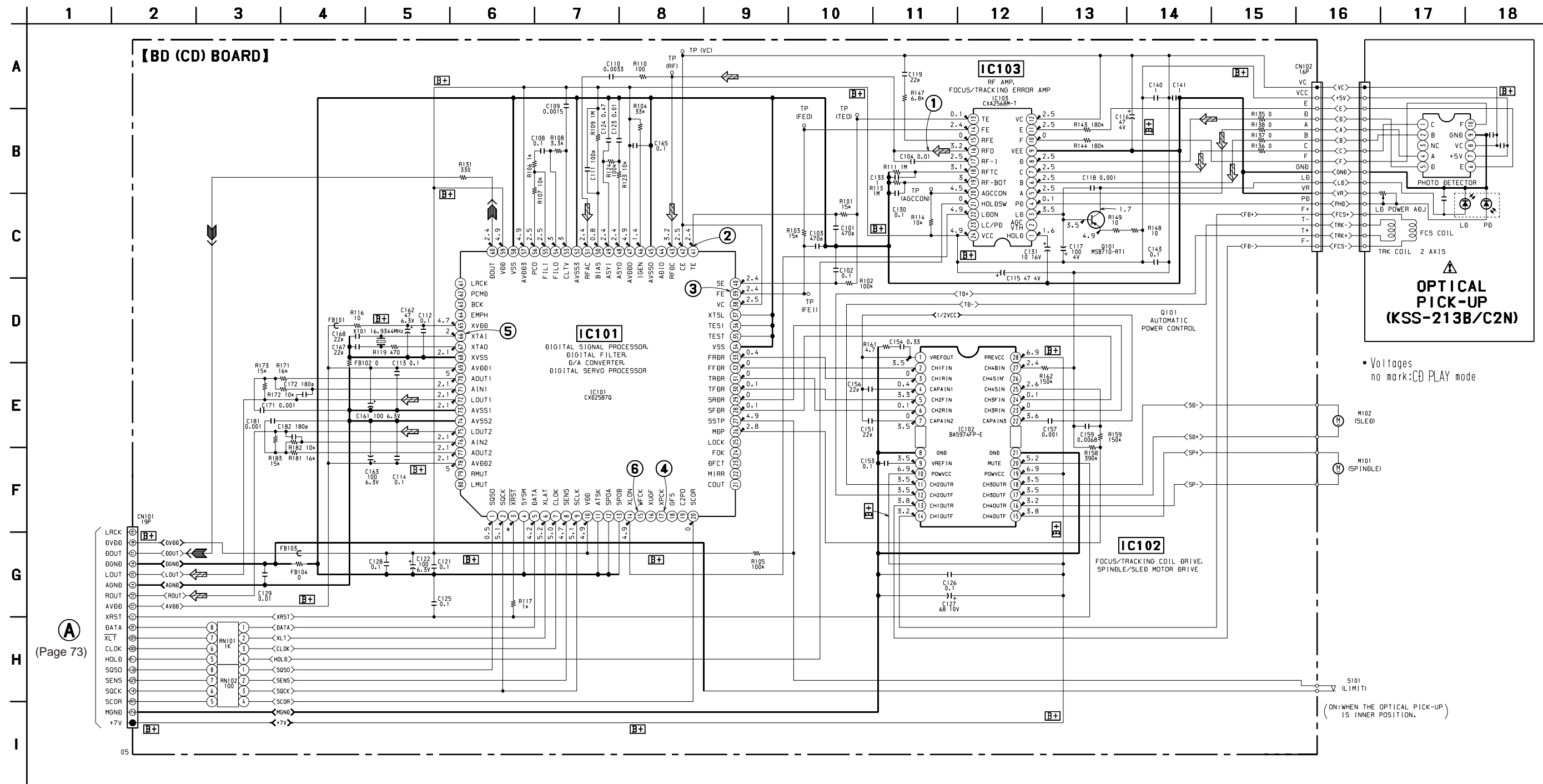
【BD (CD) BOARD】(SIDE B)



• Semiconductor Location (SIDE B)

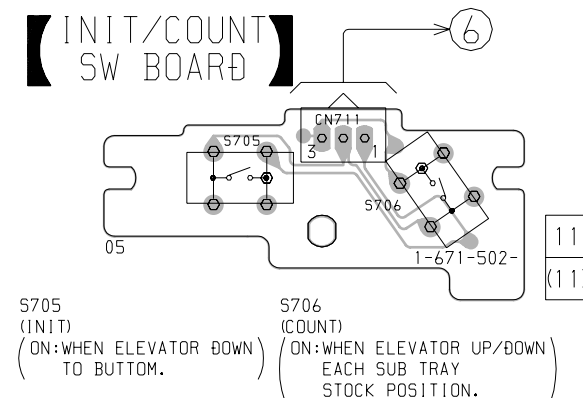
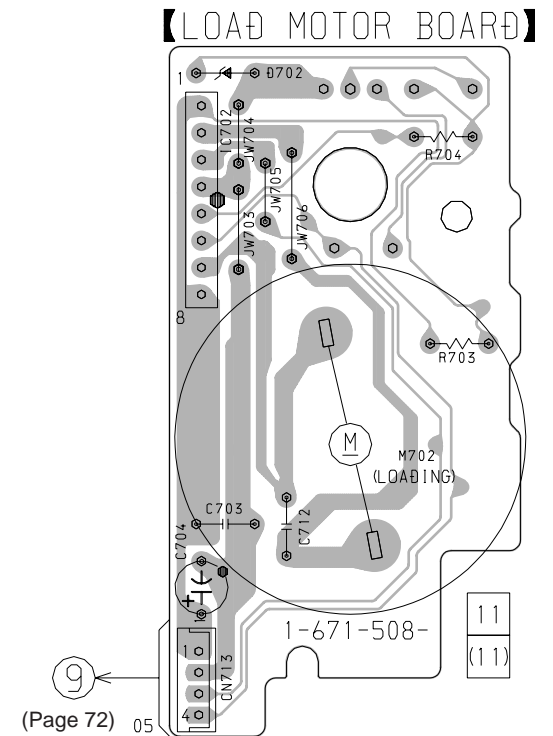
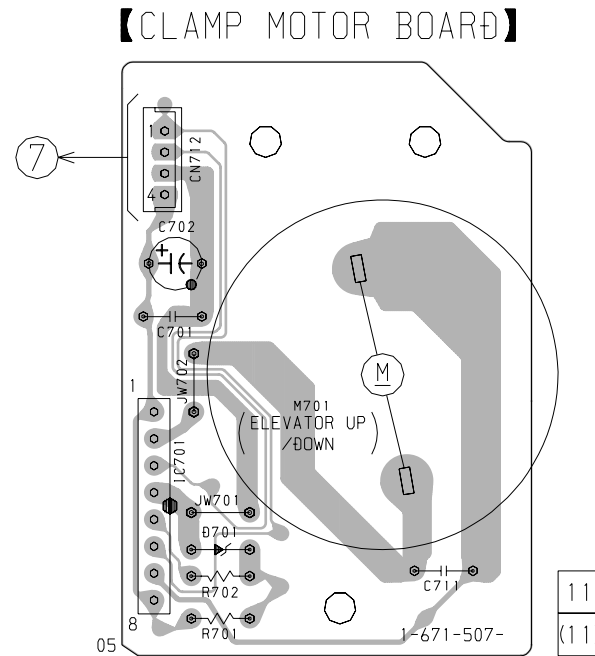
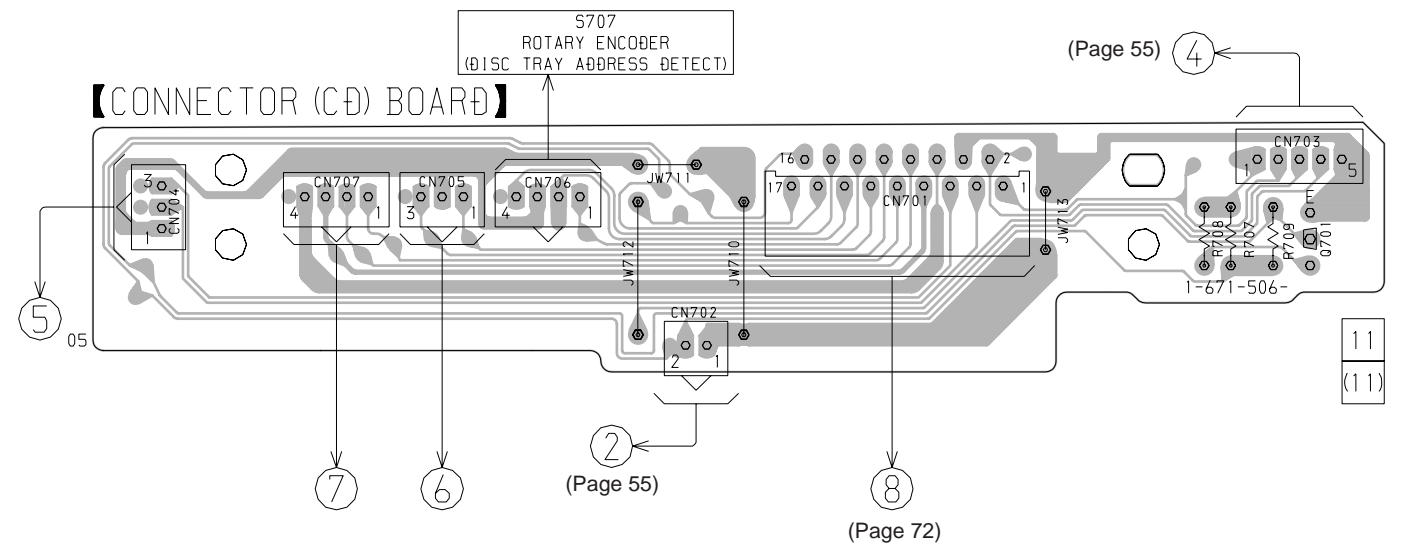
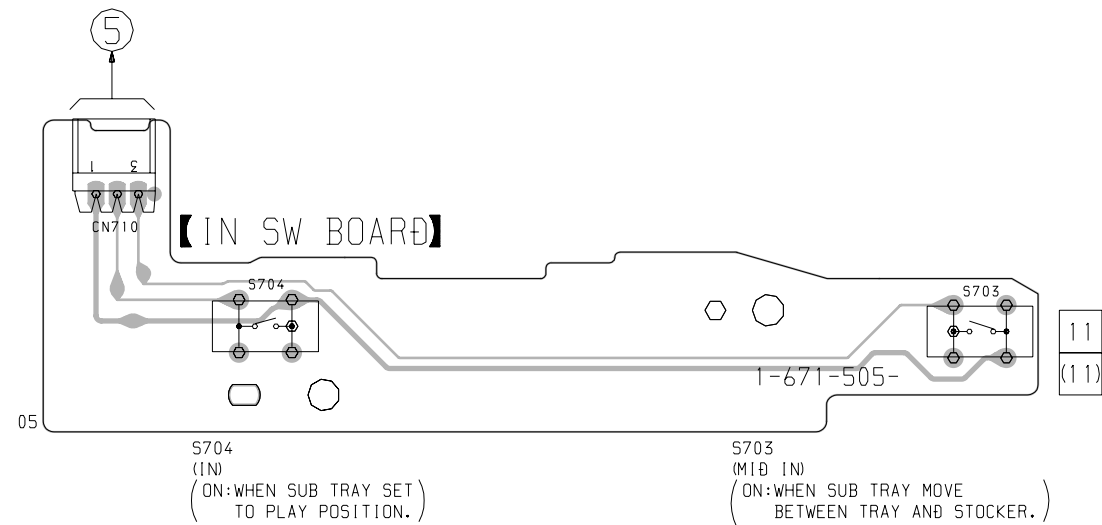
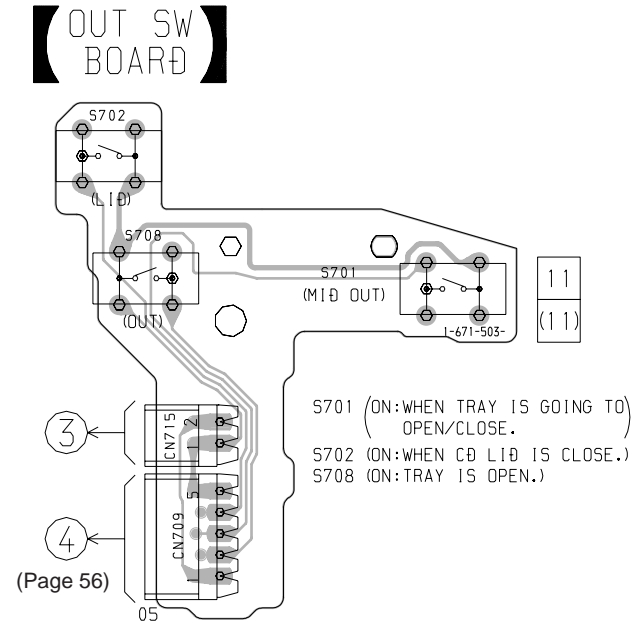
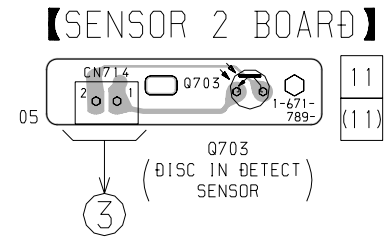
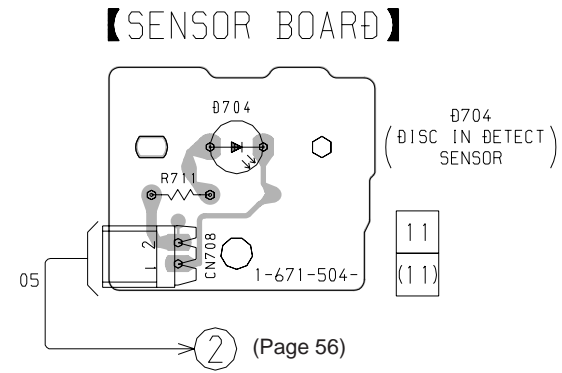
Ref. No.	Location
IC101	C-2
IC102	B-3
IC103	B-3

6-7. SCHEMATIC DIAGRAM – BD (CD) Section – • See page 65 for Waveforms. • See page 99 for IC Block Diagrams.

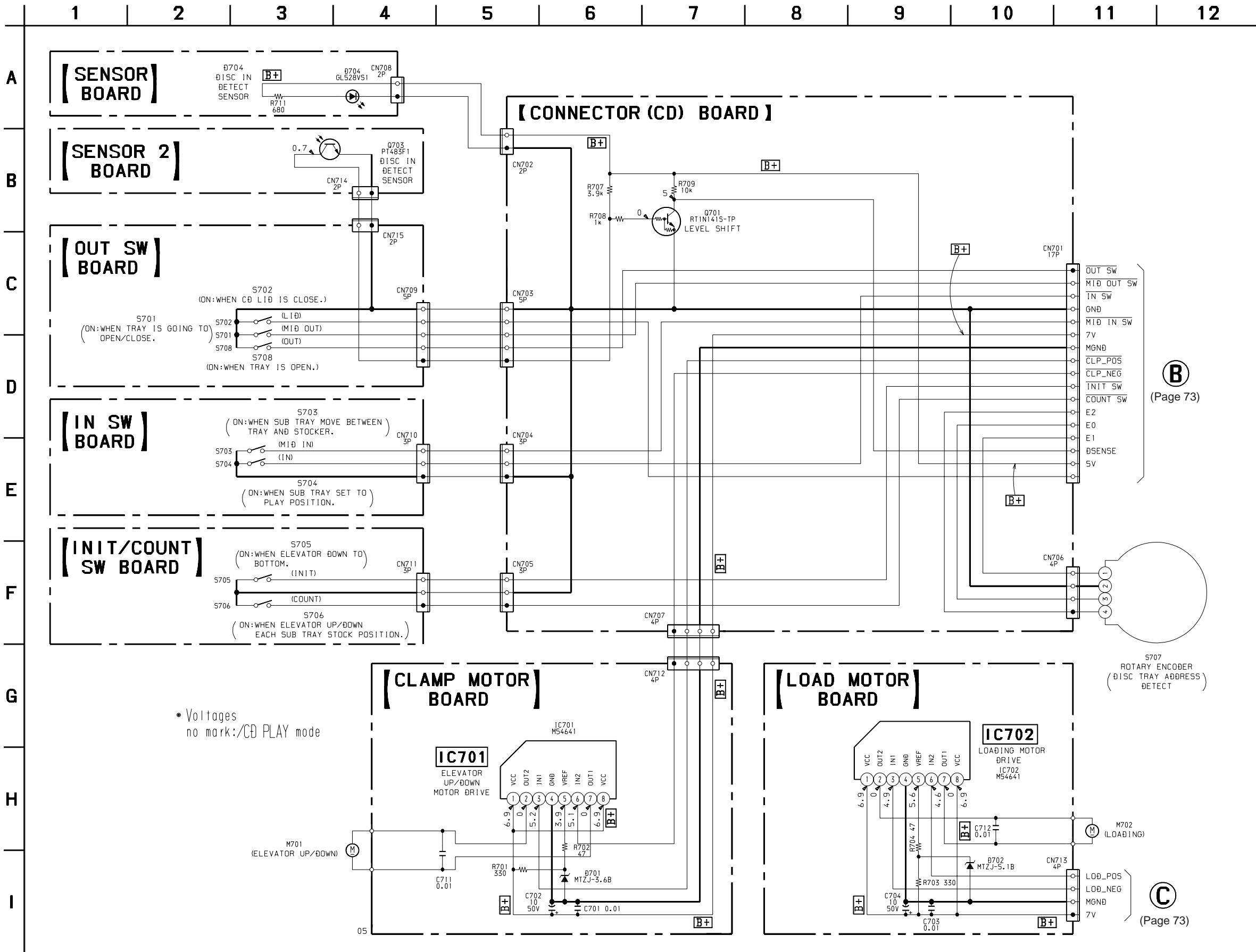


The components identified by mark or dotted line with mark are critical for safety.
Replace only with part number specified.

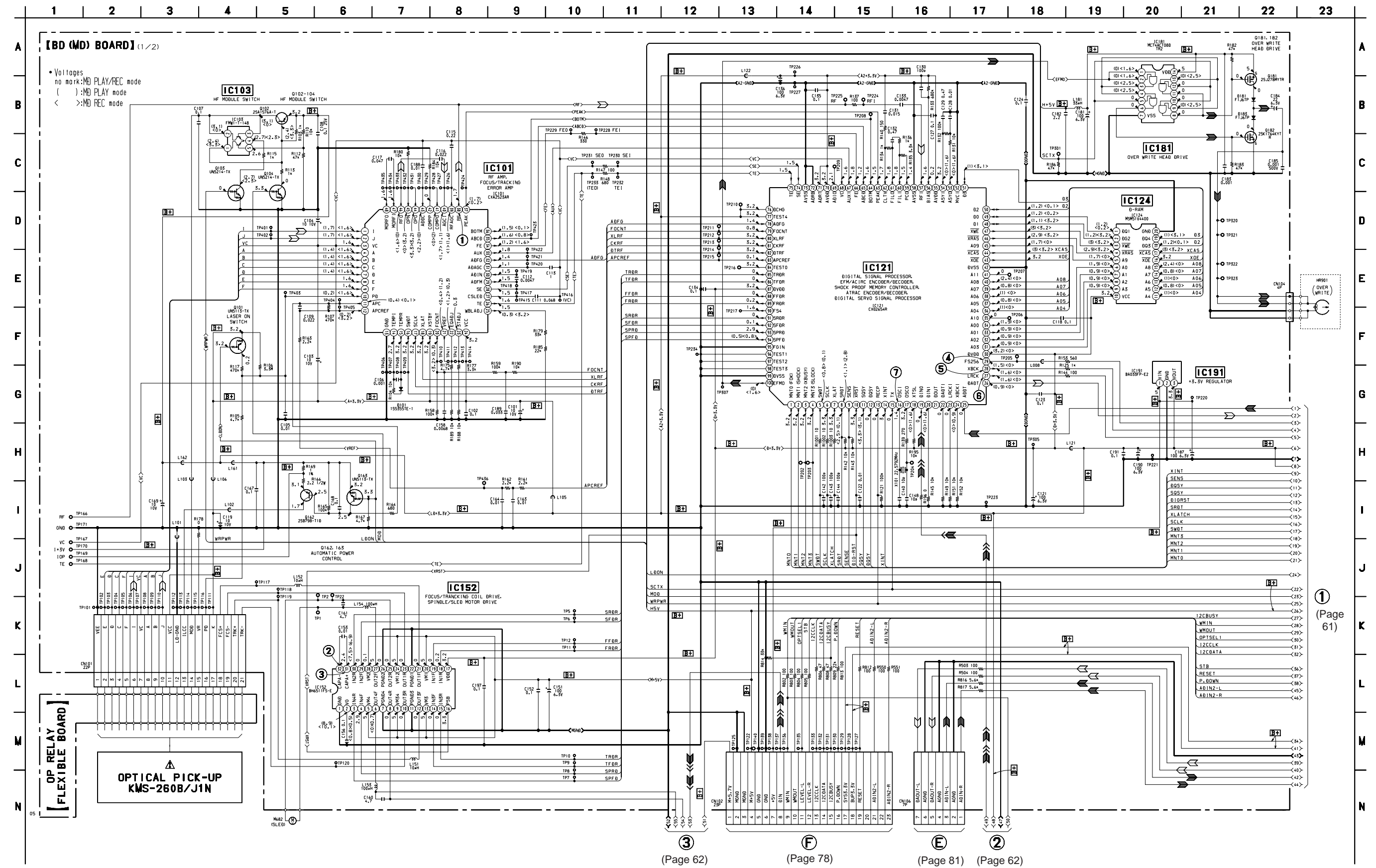
6-8. PRINTED WIRING BOARDS – CD MOTOR/SENSOR Section – • See page 49 for Circuit Boards Location.



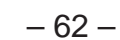
6-9. SCHEMATIC DIAGRAM – CD MOTOR/SENSOR Section – • See page 100 for IC Block Diagram.

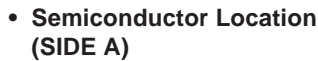


6-10. SCHEMATIC DIAGRAM – BD (MD) Section (1/2) – • See page 65 for Waveforms. • See page 101 for IC Block Diagrams.



The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.





Ref. No.	Location	Ref. No.	Location
D101	A-3	Q181	D-3
D181	D-4	Q182	D-3
D183	D-4	Q401	B-1
		Q402	B-1
IC191	C-2	Q403	B-1
IC2000	C-3		

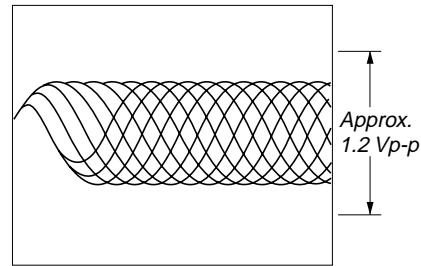


Ref. No.	Location	Ref. No.	Location
IC101	A-2	IC316	C-2
IC103	A-4	IC401	C-1
IC121	B-2		
IC124	B-1	Q101	B-4
IC152	C-4	Q102	A-4
IC171	D-3	Q103	B-4
IC172	D-3	Q104	A-4
IC181	D-4	Q162	B-4
IC201	D-1	Q163	A-4

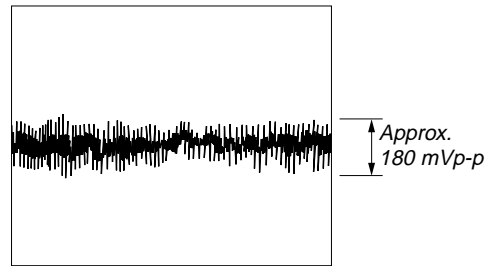
• Waveforms

– BD (CD) Board –

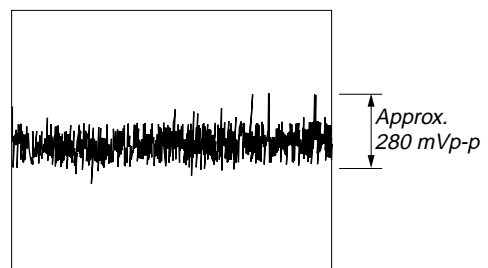
❶ IC103 ⑩ (RF O) (CD Play Mode)



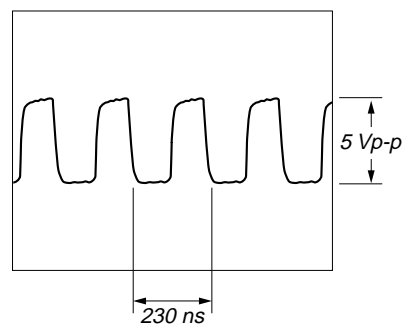
❷ IC101 ④ (TE) (CD Play Mode)



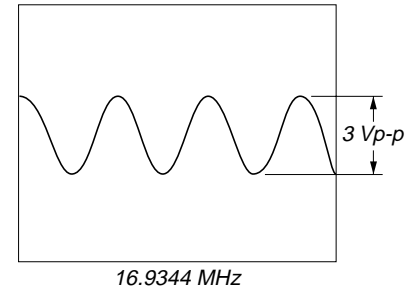
❸ IC101 ③ (FE) (CD Play Mode)



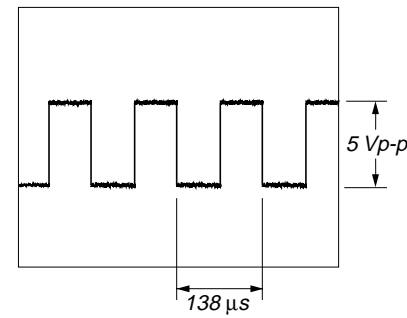
❹ IC101 ⑦ (XPCK)



❺ IC101 ⑥ (XTAI)

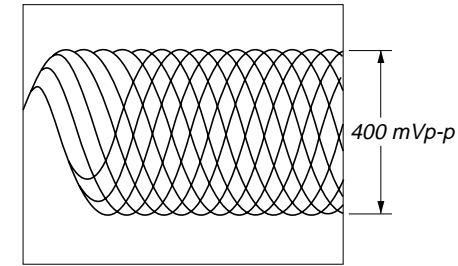


❻ IC101 ⑤ (WFCK)

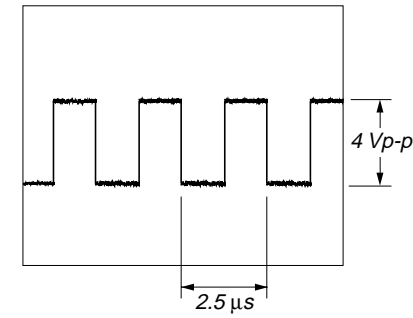


– BD (MD) Board –

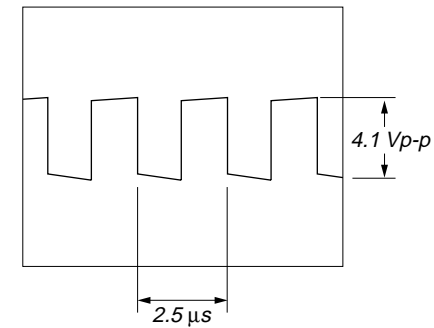
❶ IC101 ③ (RF) (MD Play Mode)



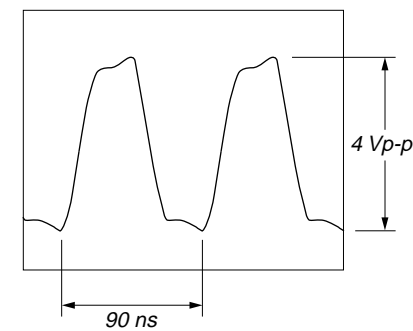
❷ IC152 ③ (CAPA-) (MD Play Mode)



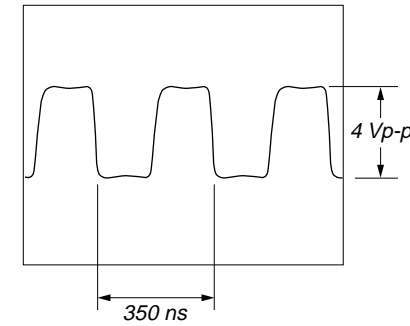
❸ IC152 ③ (CAPA+) (MD Play Mode)



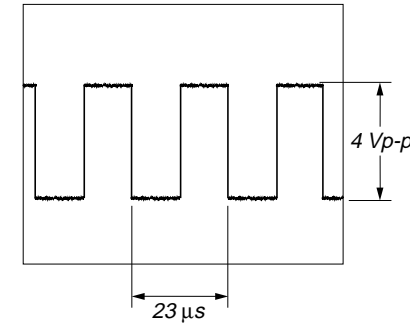
❹ IC121 ② (FS256)



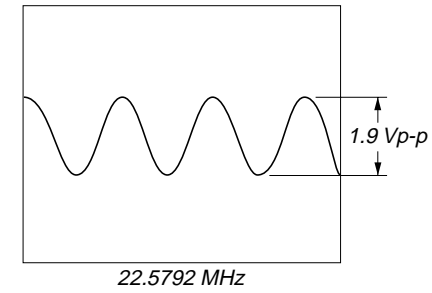
❺ IC121 ② (XBCK)



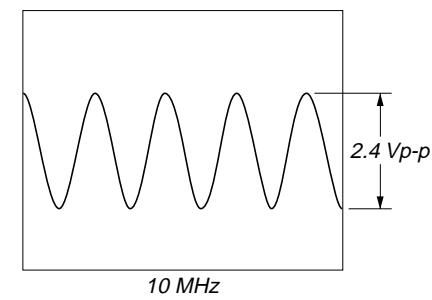
❻ IC121 ⑦ (LRCK)



❼ IC121 ⑥ (OSCI)

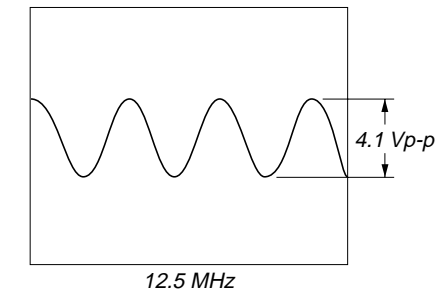


❽ IC316 ⑤ (XIN)



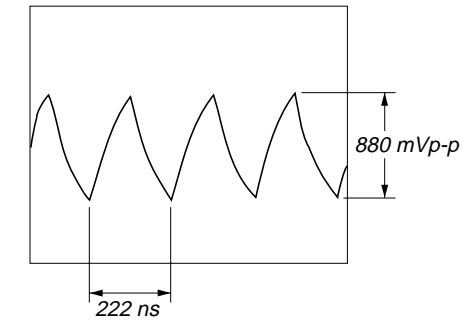
– MICROCOMPUTER Board –

❶ IC300 ③ (X2)

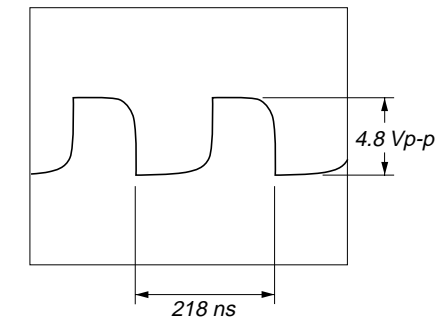


– CD DISPLAY Board –

❶ IC601 ② (XIN)

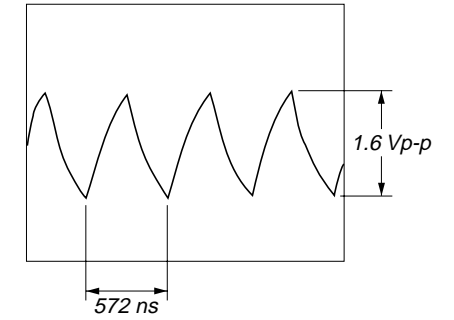


❷ IC601 ② (XOUT)

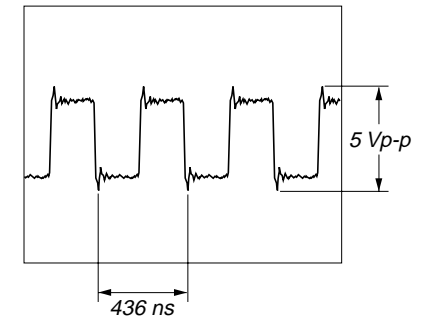


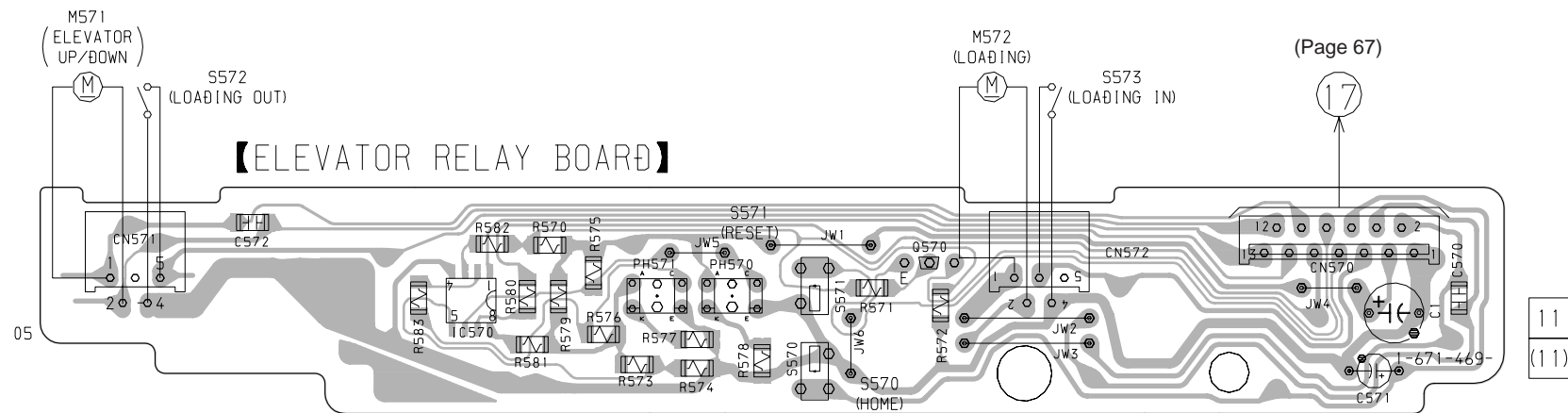
– MD DISPLAY Board –

❶ IC801 ⑤ (OSCO)

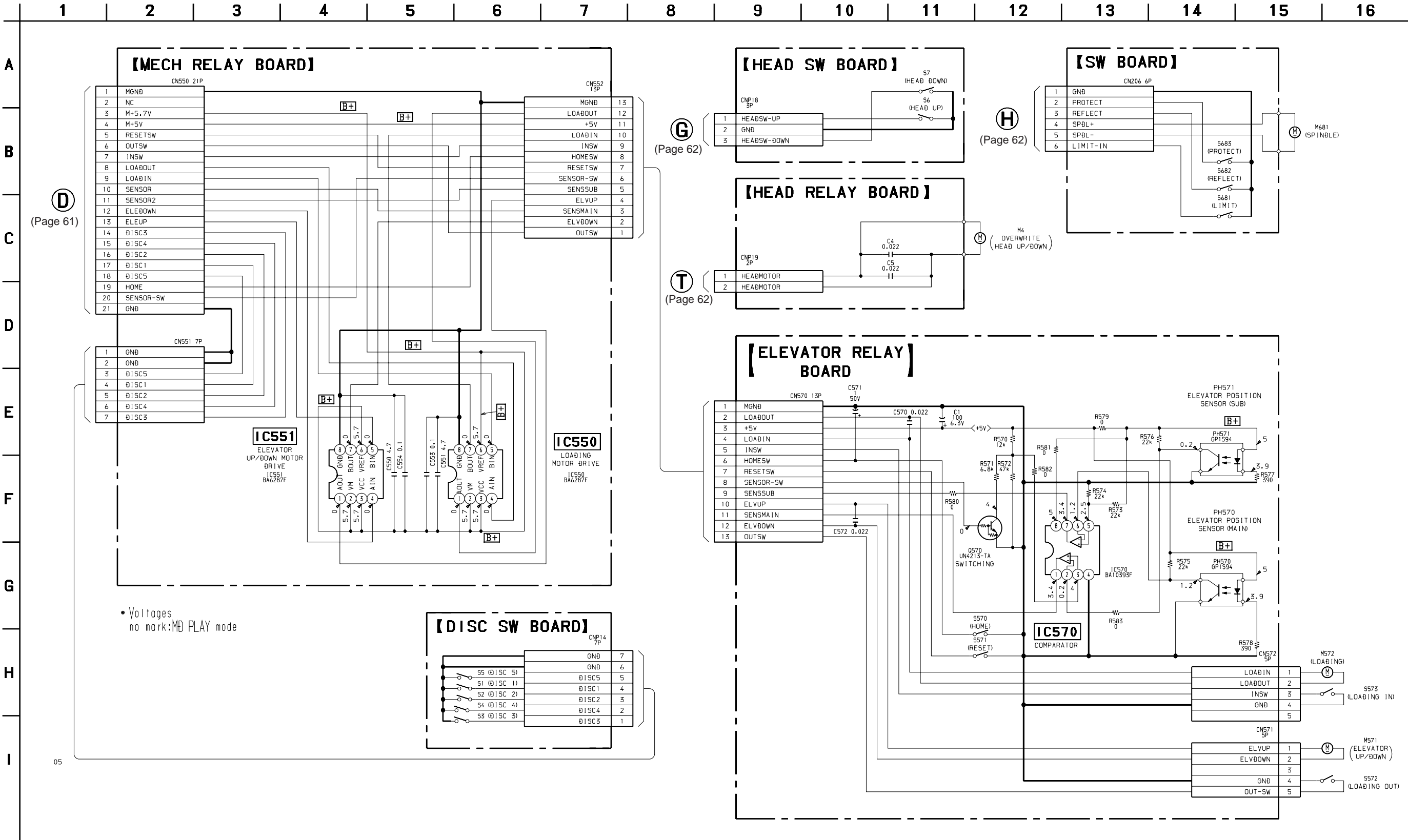


❷ IC801 ⑤ (OSC1)

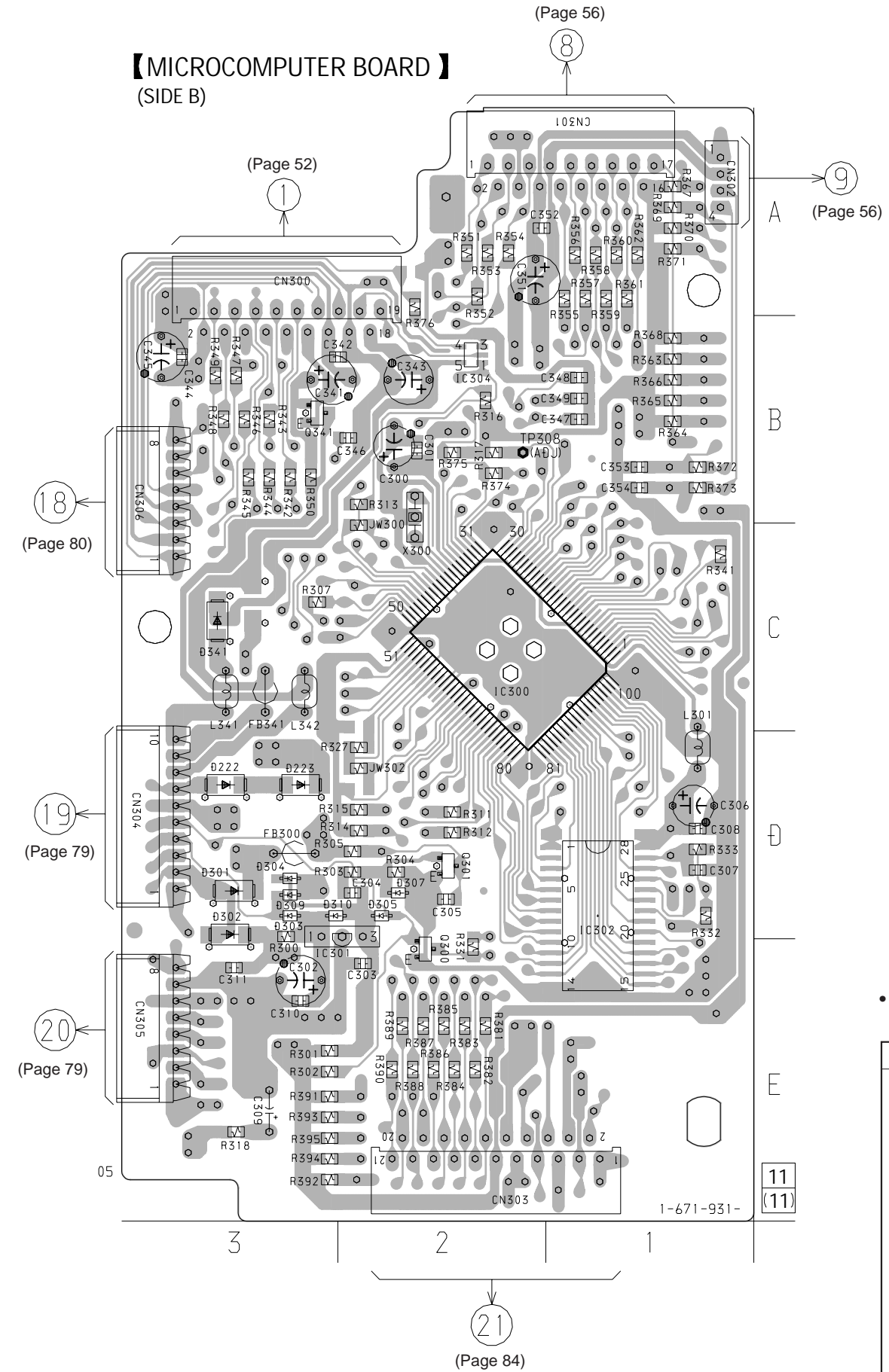
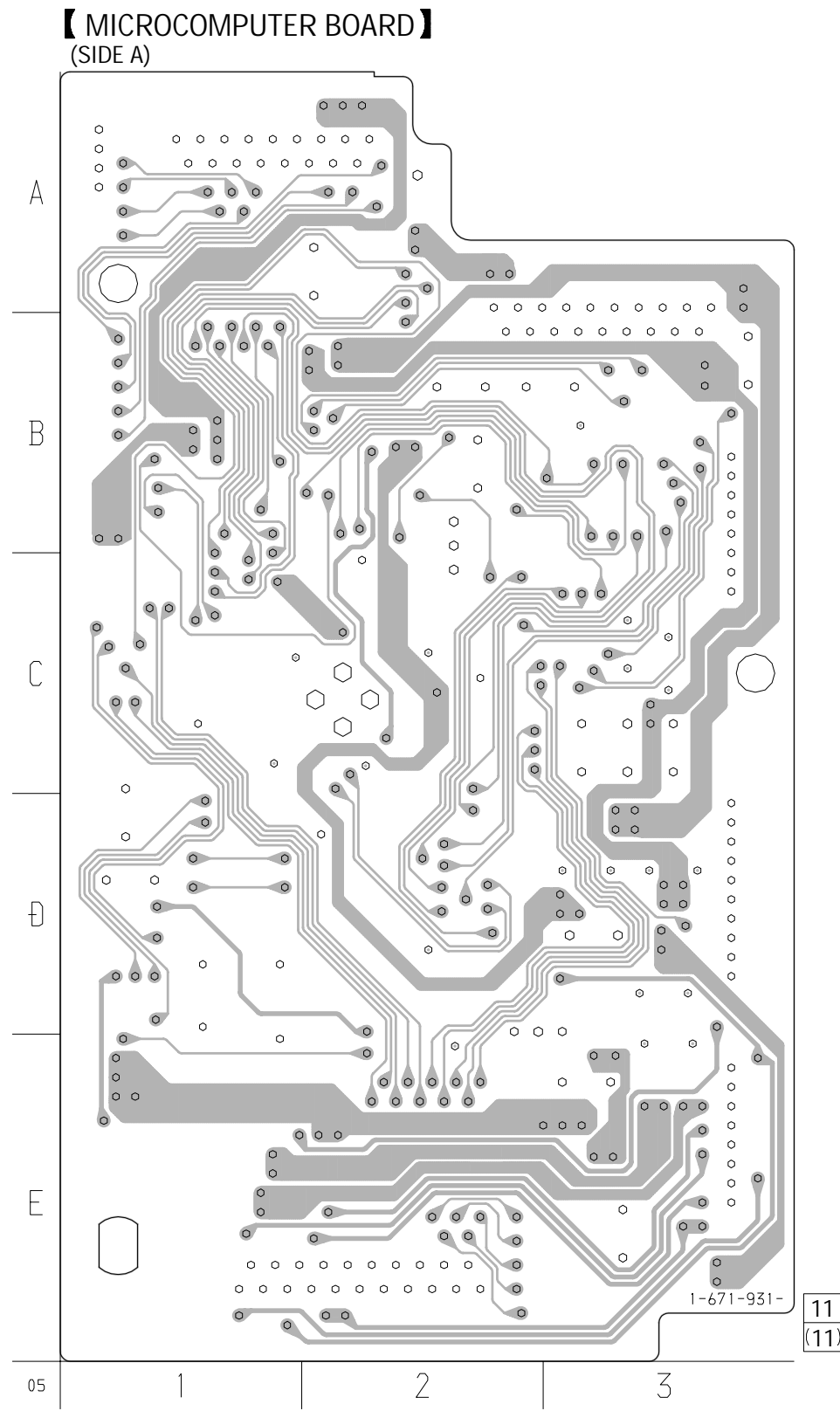




6-14. SCHEMATIC DIAGRAM – MD MOTOR/SENSOR Section – • See page 103 for IC Block Diagram.

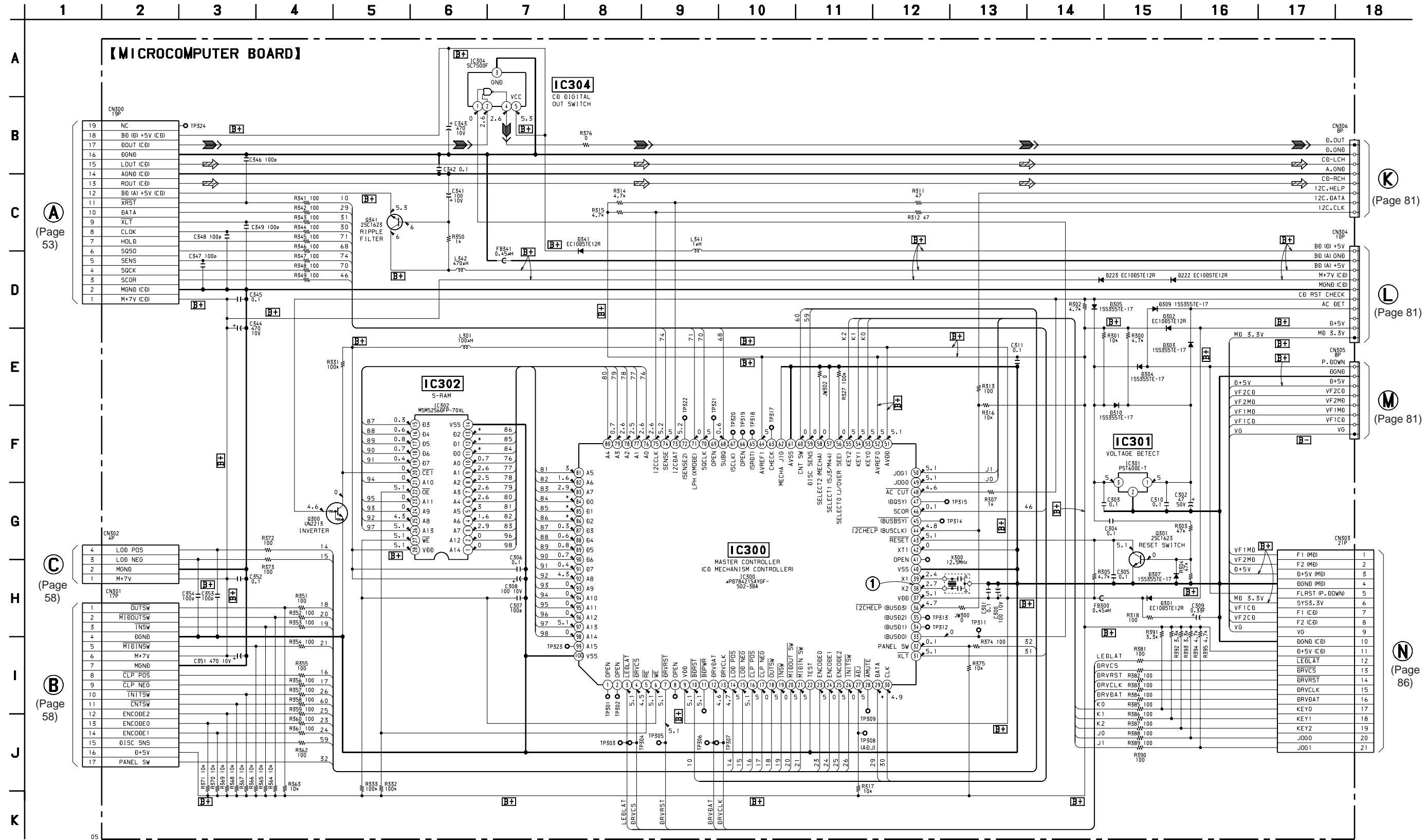


6-15. PRINTED WIRING BOARD – MICROCOMPUTER Section – • See page 49 for Circuit Boards Location.



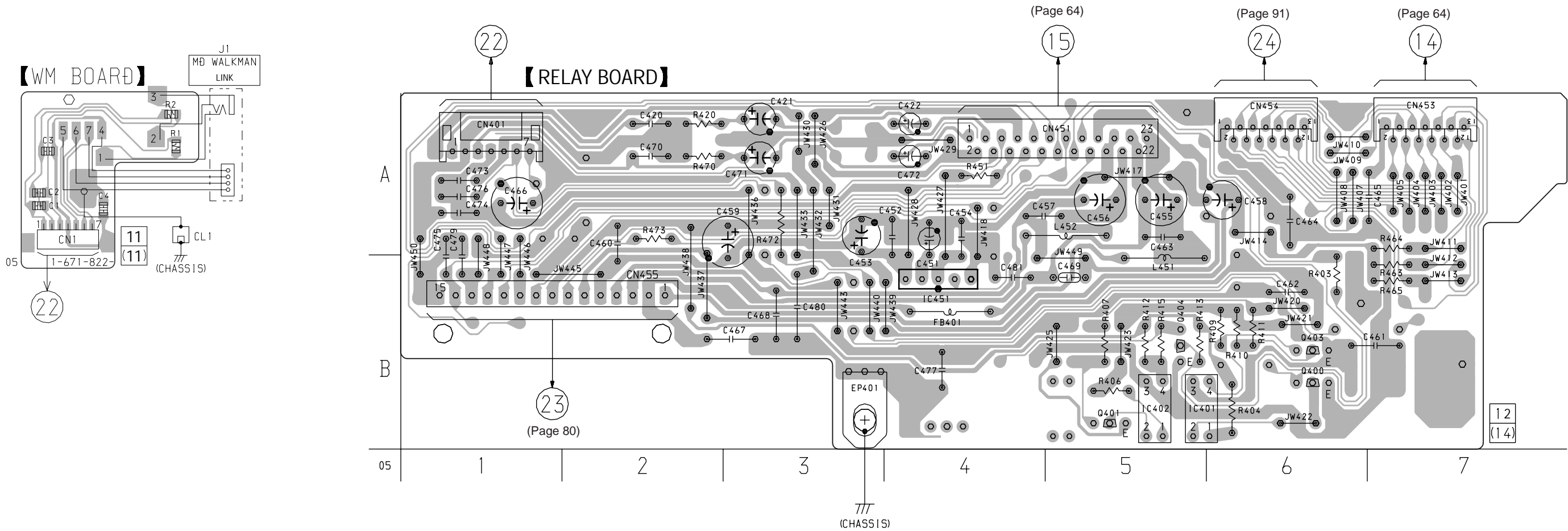
Ref. No.	Location
D222	D-3
D223	D-3
D301	D-3
D302	D-3
D303	D-3
D304	D-3
D305	D-2
D307	D-2
D309	D-3
D310	D-3
D341	C-3
IC300	C-2
IC301	E-2
IC302	D-1
IC304	B-2
Q300	E-2
Q301	D-2
Q341	B-3

6-16. SCHEMATIC DIAGRAMS – MICROCOMPUTER Section – • See page 66 for Waveform.

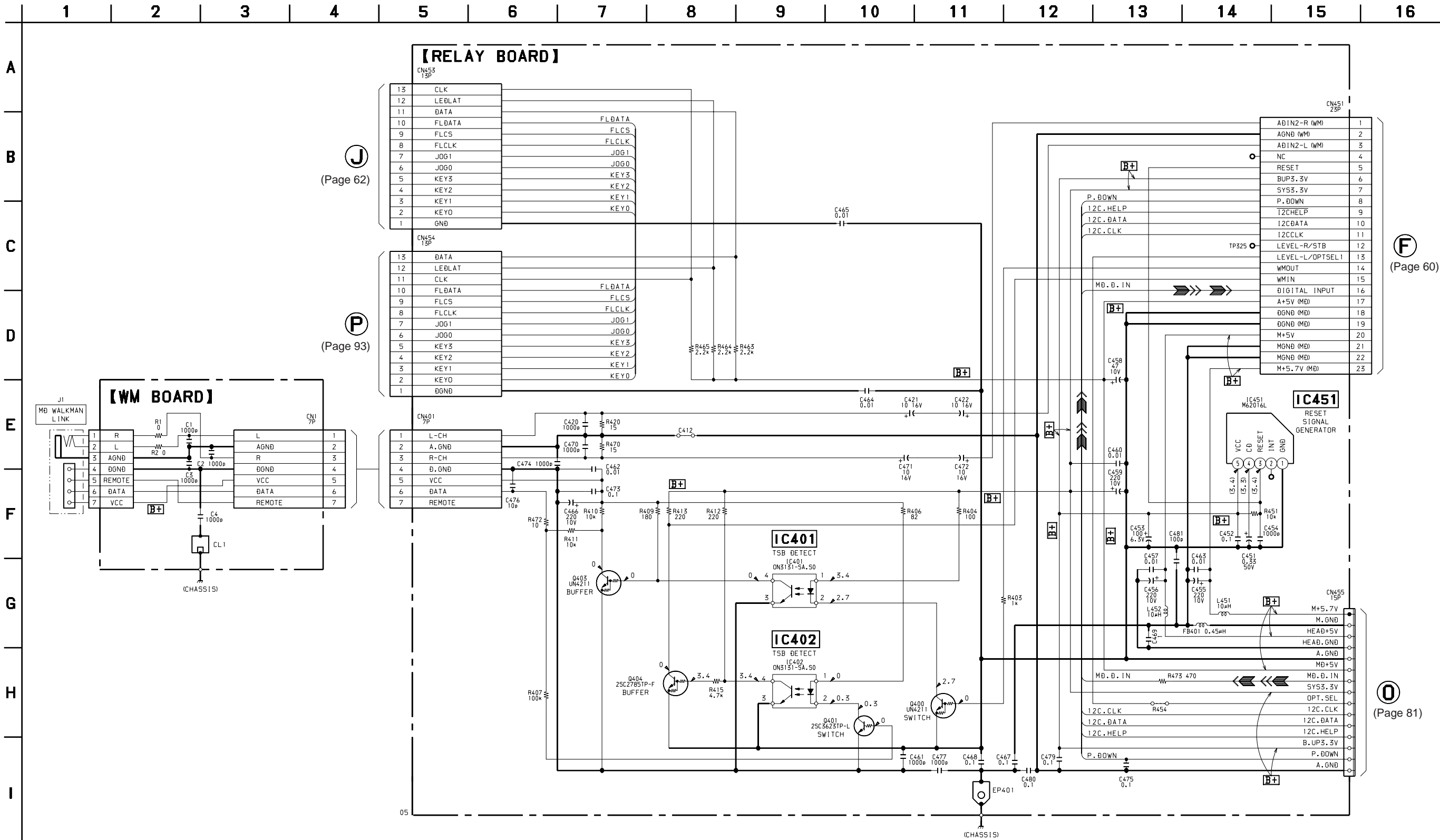


• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : CD PLAY
* : Impossible to measure

6-17. PRINTED WIRING BOARDS – RELAY Section – • See page 49 for Circuit Boards Location.



6-18. SCHEMATIC DIAGRAM – RELAY Section – • See page 103 for IC Block Diagram.

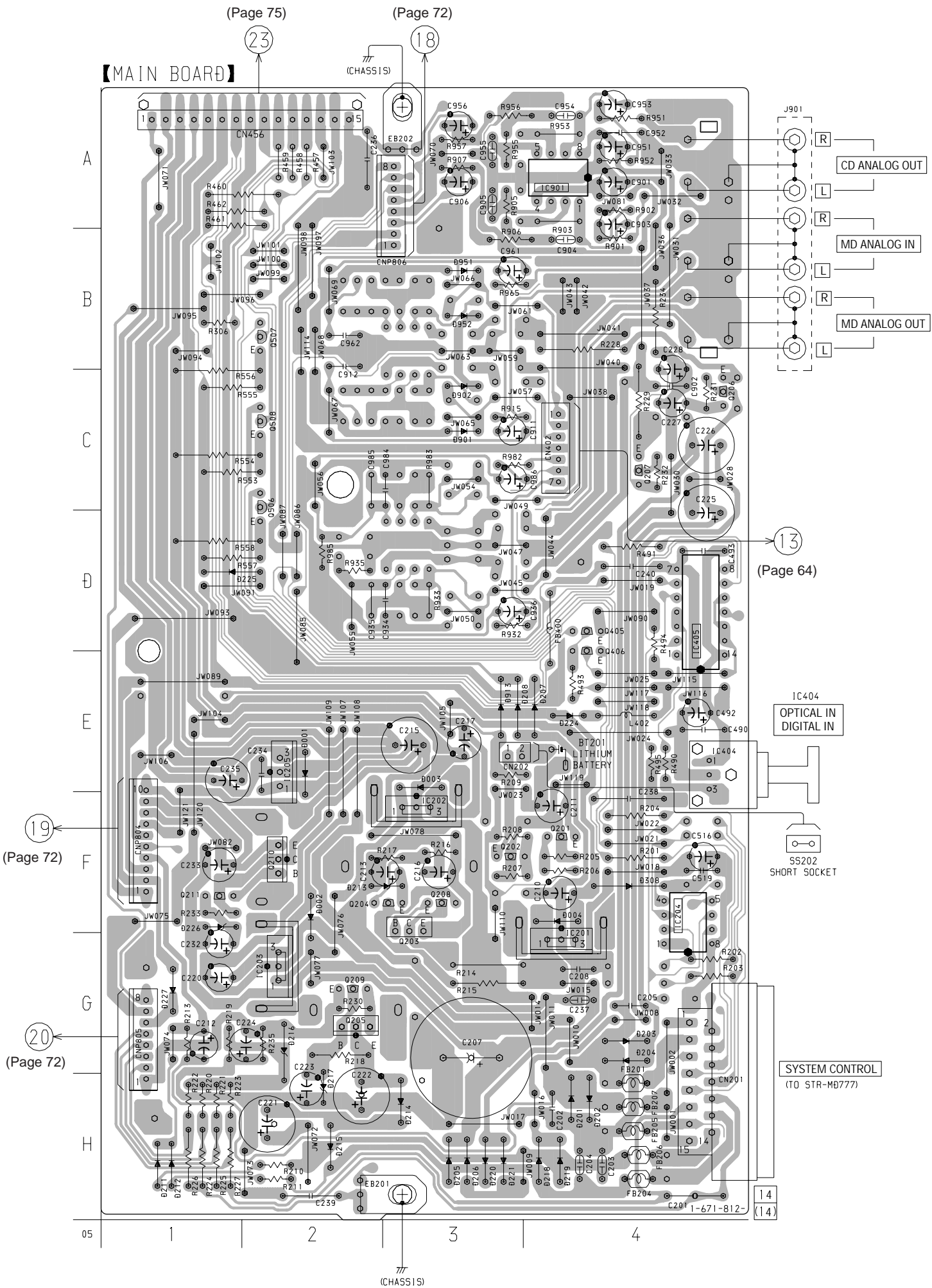


• Voltages are dc with respect to ground under no-signal conditions.
no mark : CD PLAY
() : MD PLAY

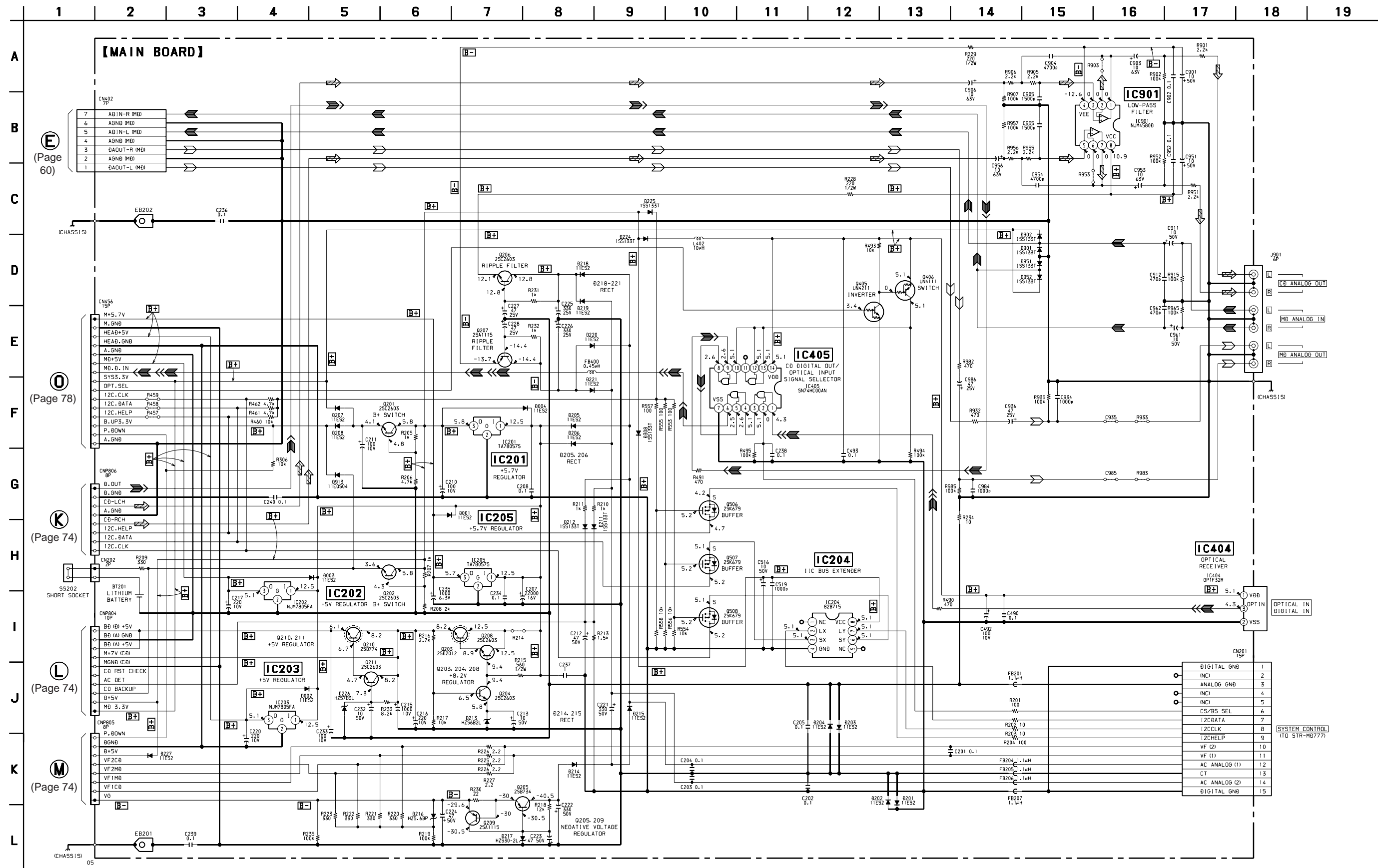
6-19. PRINTED WIRING BOARD – MAIN Section – • See page 49 for Circuit Boards Location.

- **Semiconductor Location**

Ref. No.	Location
D001	E-2
D002	F-2
D003	E-3
D004	F-4
D201	H-4
D202	H-4
D203	G-4
D204	G-4
D205	H-3
D206	H-3
D207	E-4
D208	E-3
D211	H-1
D212	H-1
D213	F-3
D214	H-3
D215	H-2
D216	G-2
D217	H-2
D218	H-4
D219	H-4
D220	H-3
D221	H-3
D224	E-4
D225	D-1
D226	F-1
D227	G-1
D308	F-4
D901	C-3
D902	C-3
D913	E-3
D951	B-3
D952	B-3
IC201	G-4
IC202	F-3
IC203	G-2
IC204	F-4
IC205	E-2
IC404	E-4
IC405	D-4
IC901	A-4
Q201	F-4
Q202	F-3
Q203	F-3
Q204	F-3
Q205	G-2
Q206	C-4
Q207	C-4
Q208	F-3
Q209	G-2
Q210	F-2
Q211	F-1
Q405	D-4
Q406	E-4
Q506	C-2
Q507	B-2
Q508	C-2



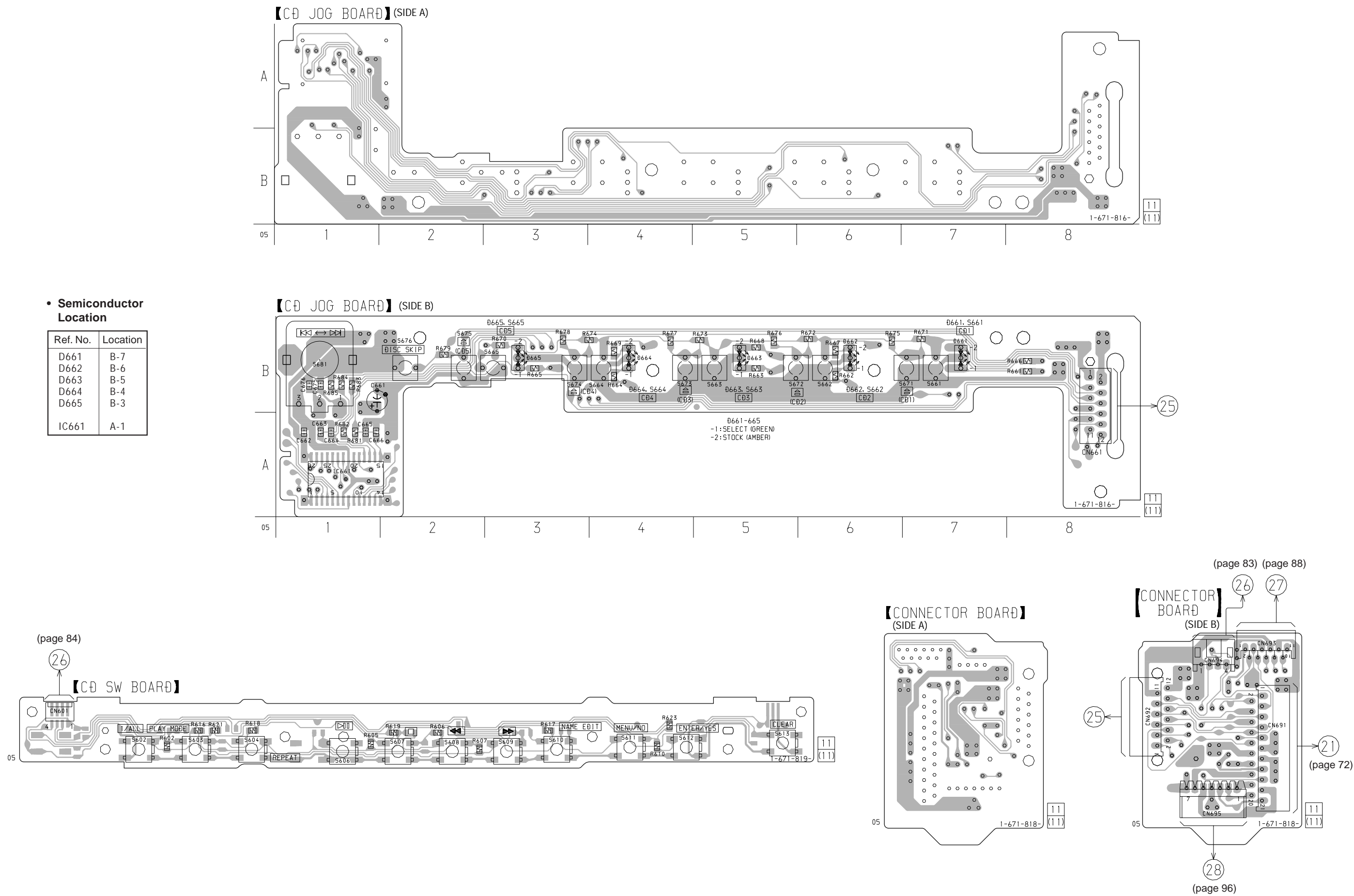
6-20. SCHEMATIC DIAGRAM – MAIN Section – • See page 104 for IC Block Diagram.



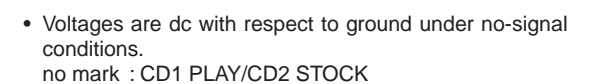
- Voltages are dc with respect to ground under no-signal conditions.

no mark : CD PLAY

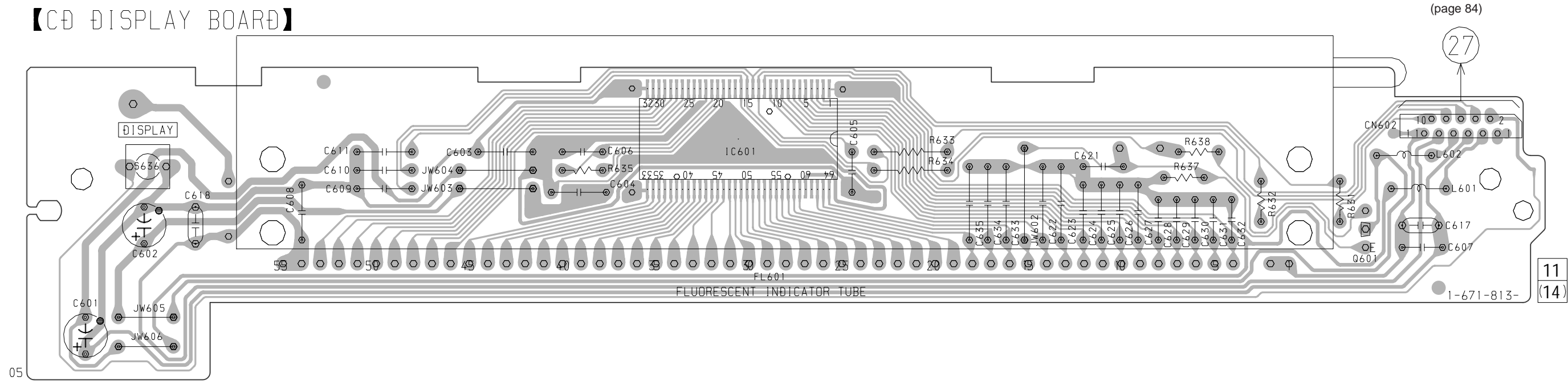
6-21. PRINTED WIRING BOARDS – CD JOG/SW Section – • See page 49 for Circuit Boards Location.



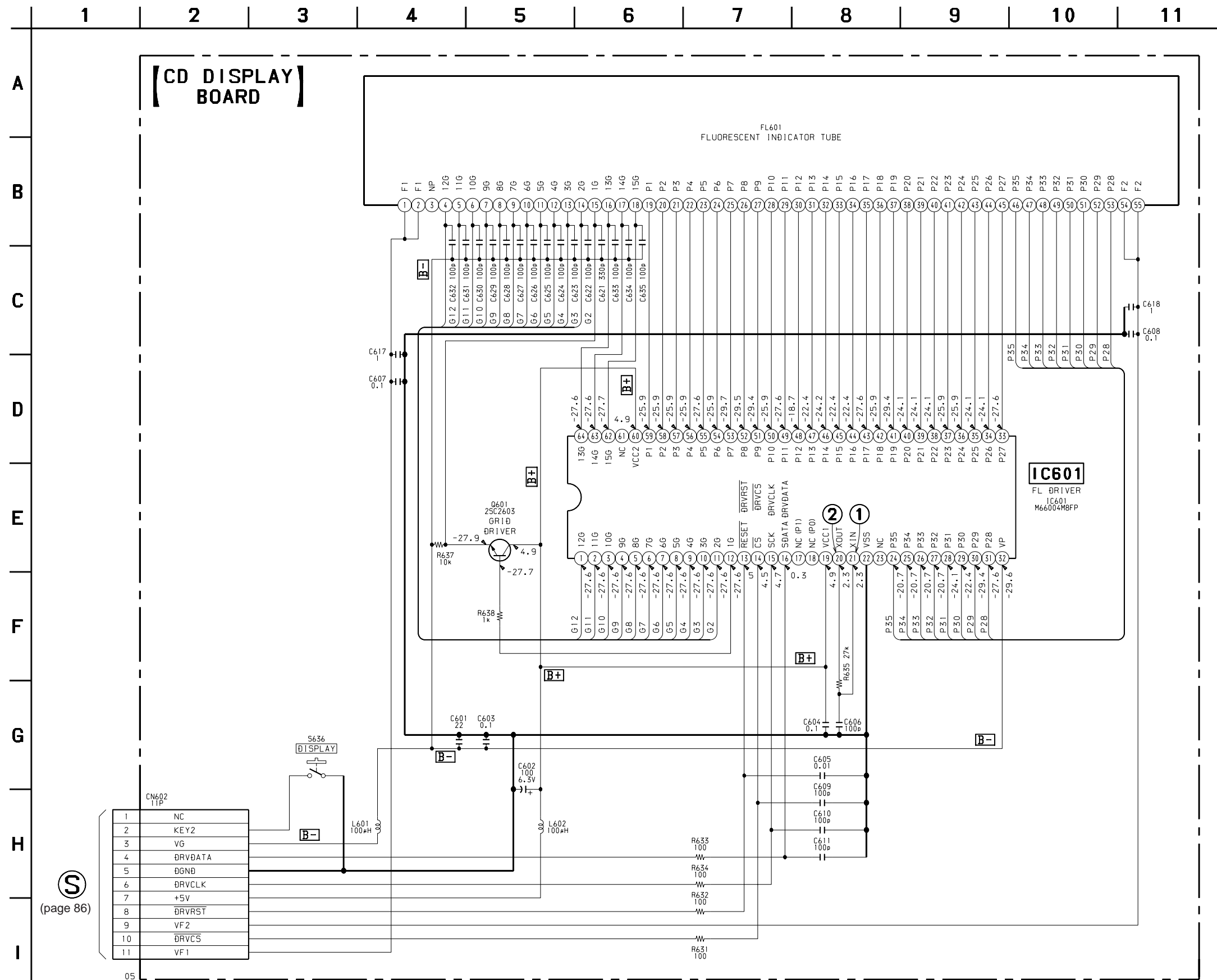
®
(page 98)



6-23. PRINTED WIRING BOARD – CD DISPLAY Section – • See page 49 for Circuit Boards Location.



6-24. SCHEMATIC DIAGRAM – CD DISPLAY Section – • See page 66 for Waveforms. • See page 104 for IC Block Diagram.



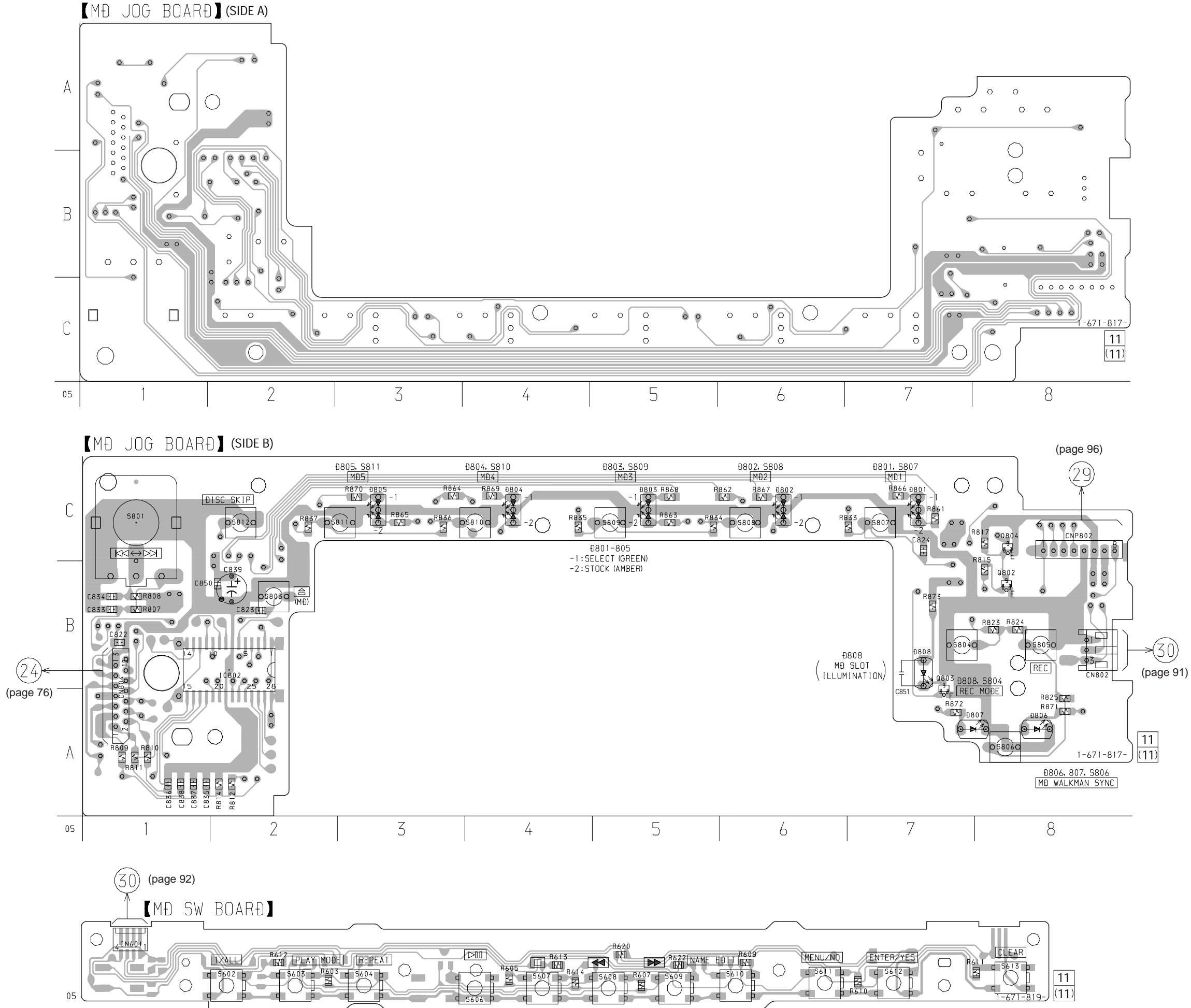
- Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark : CD STOP

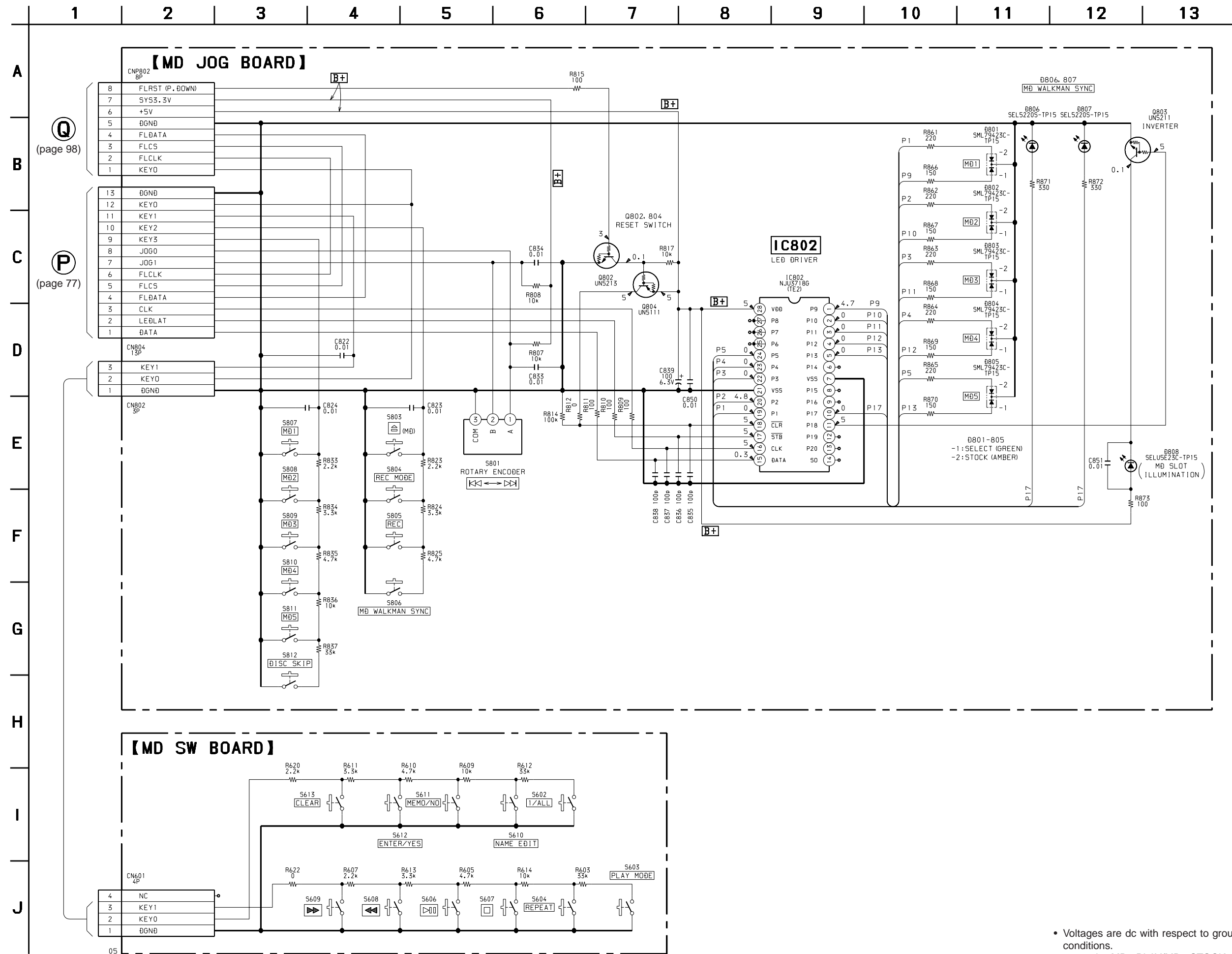
6-25. PRINTED WIRING BOARDS – MD JOG/SW Section – • See page 49 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D801	C-7
D802	C-6
D803	C-5
D804	C-4
D805	C-3
D806	A-8
D807	A-7
D808	B-7
IC802	B-2
Q802	B-8
Q803	B-7
Q804	C-8

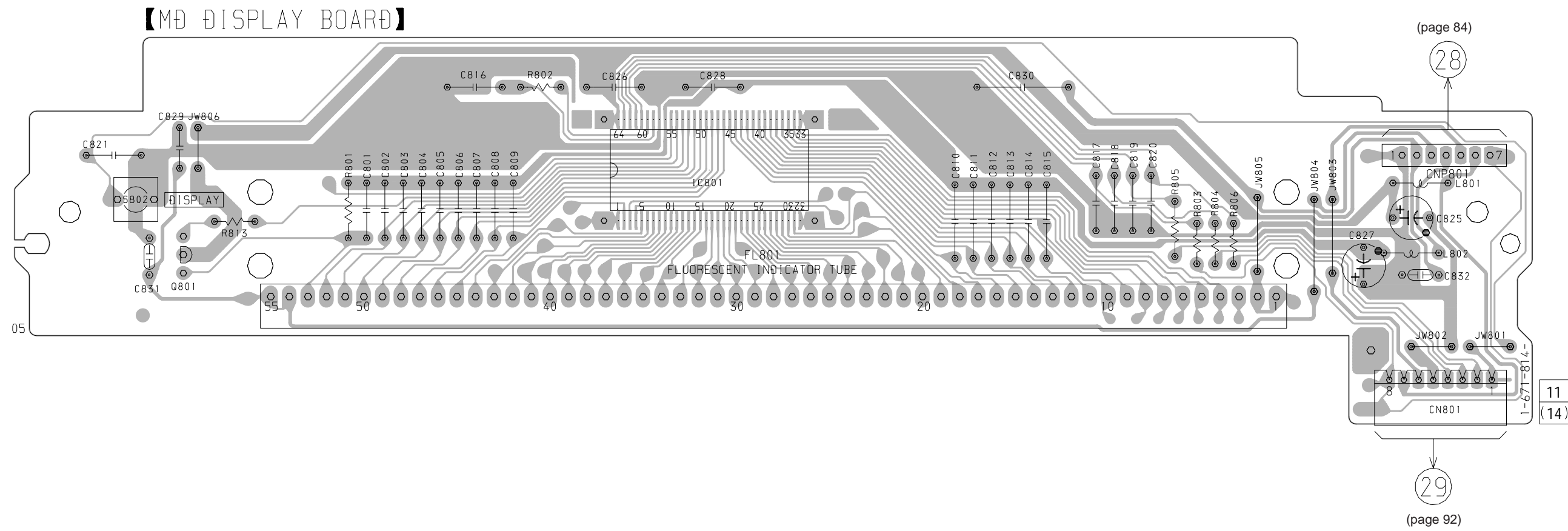


6-26. SCHEMATIC DIAGRAM – MD JOG/SW Section – • See page 104 for IC Block Diagram.

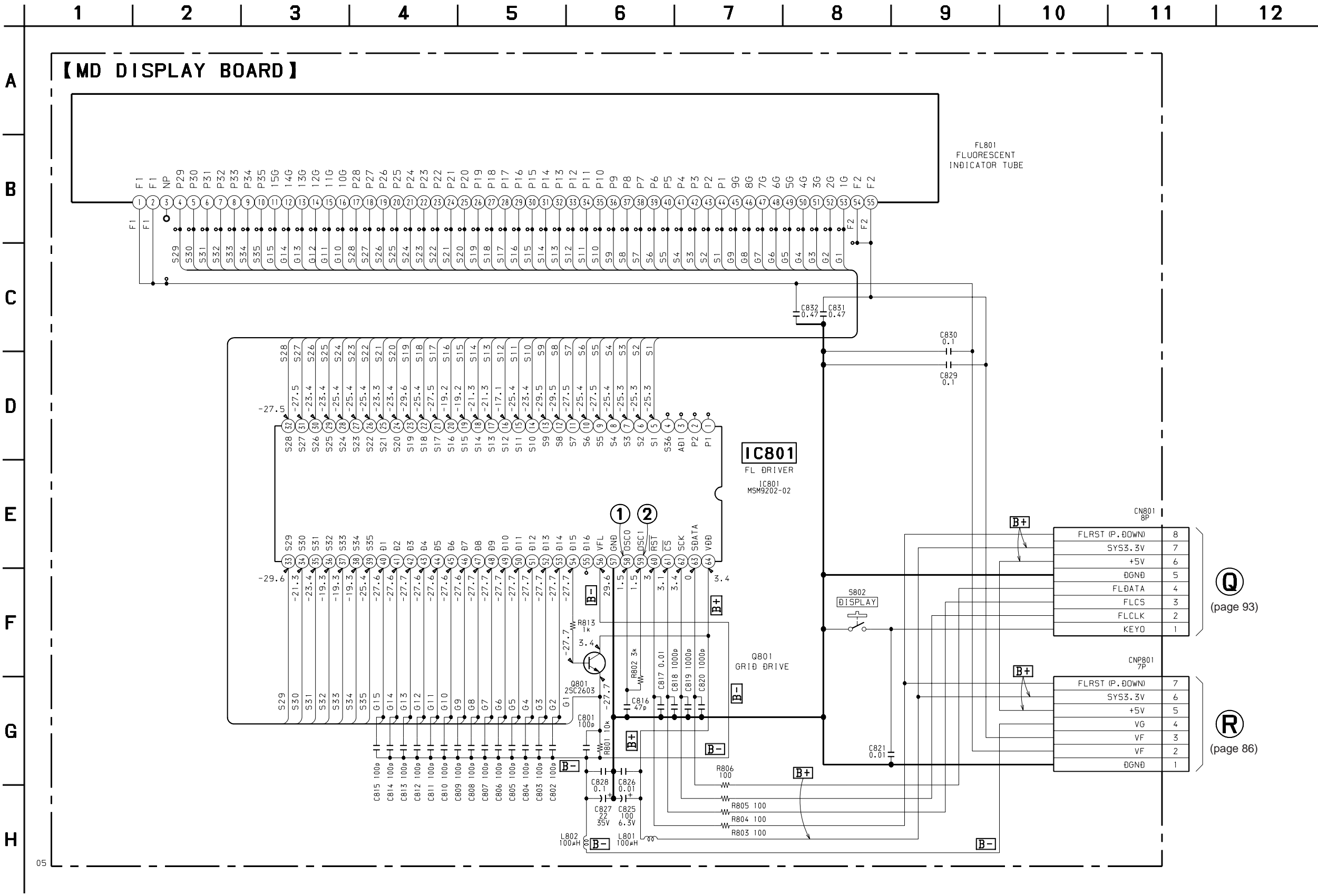


• Voltages are dc with respect to ground under no-signal conditions.
no mark : MD1 PLAY/MD2 STOCK

6-27. PRINTED WIRING BOARD – MD DISPLAY Section – • See page 49 for Circuit Boards Location.



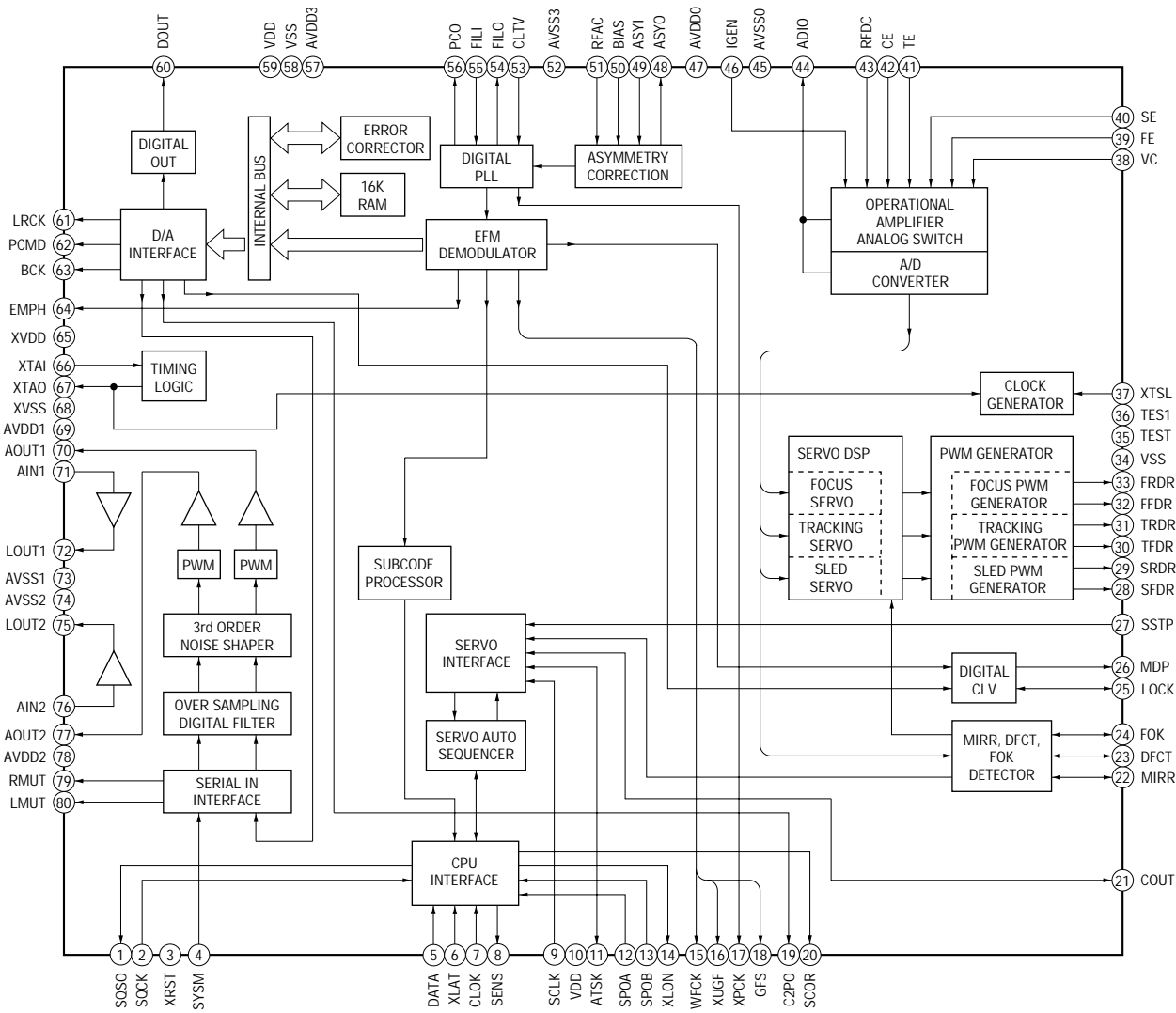
6-28. SCHEMATIC DIAGRAM – MD DISPLAY Section – • See page 66 for Waveforms.



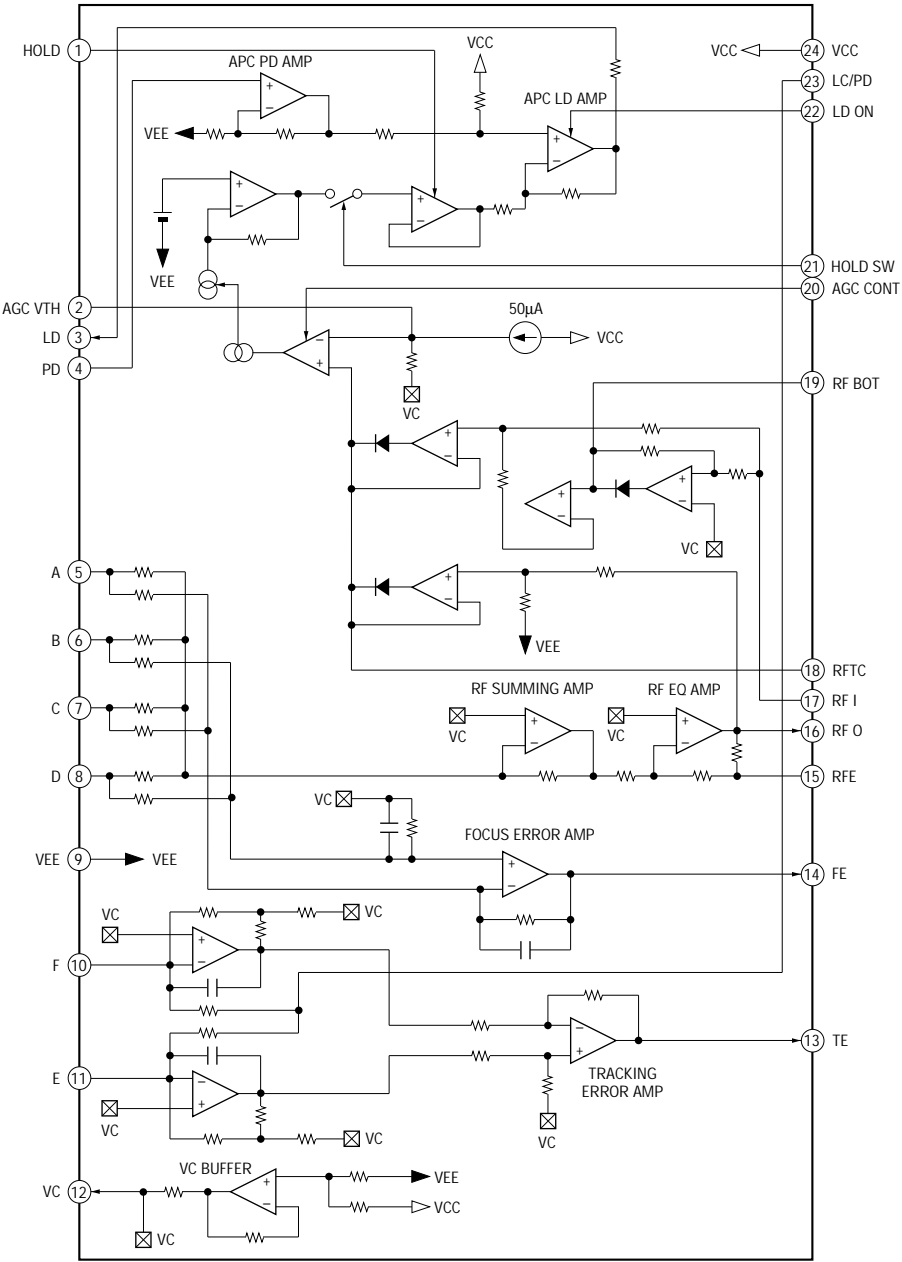
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : MD STOP

• IC Block Diagrams
– BD (CD) BOARD –

IC101 CXD2587Q



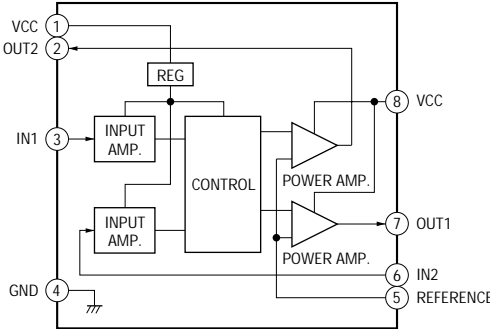
IC103 CXA2568M-T6



– CLAMP MOTOR BOARD/LOAD MOTOR BOARD –

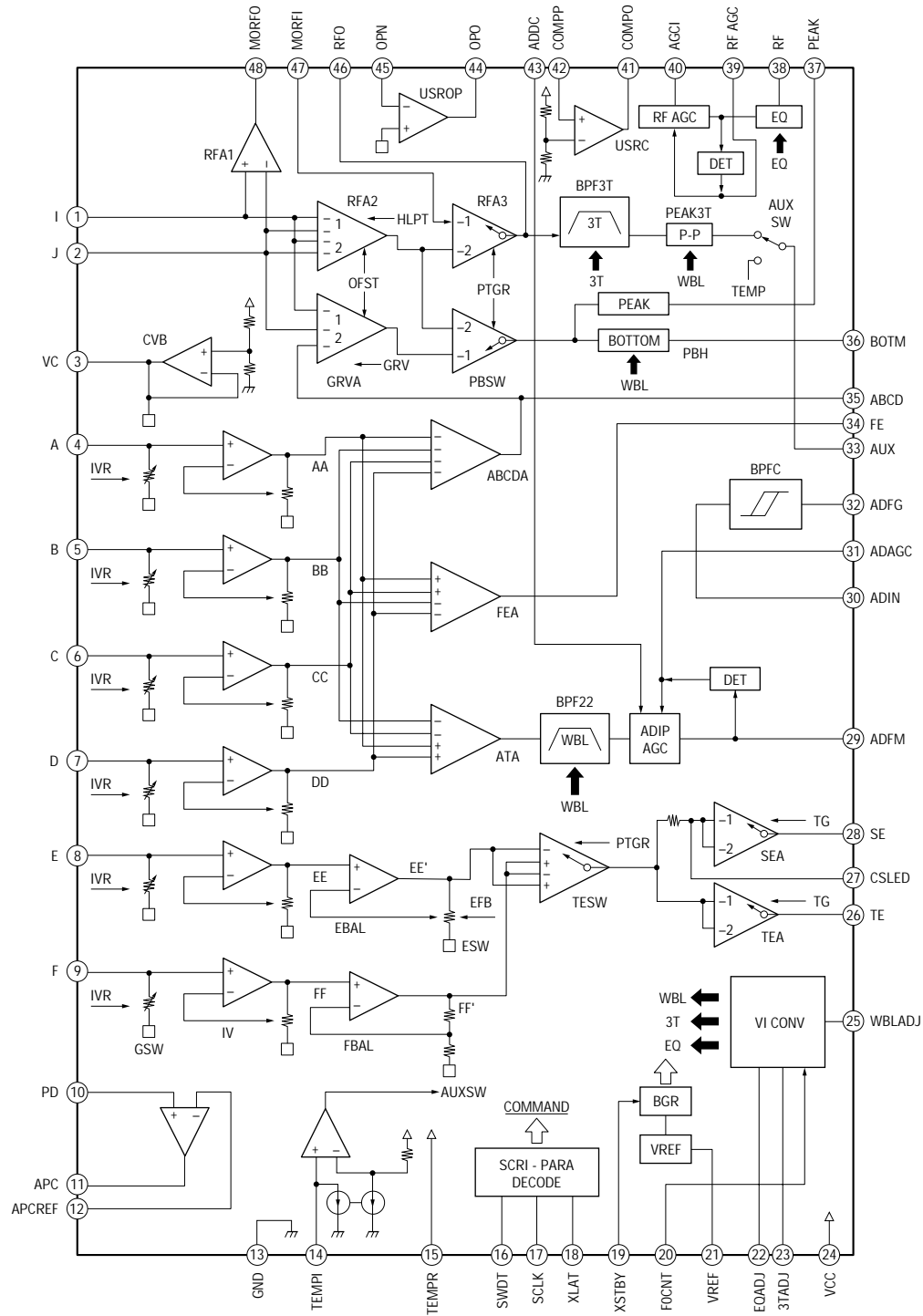
IC701 M54641L (CLAMP MOTOR Board)

IC702 M54641L (LOAD MOTOR Board)

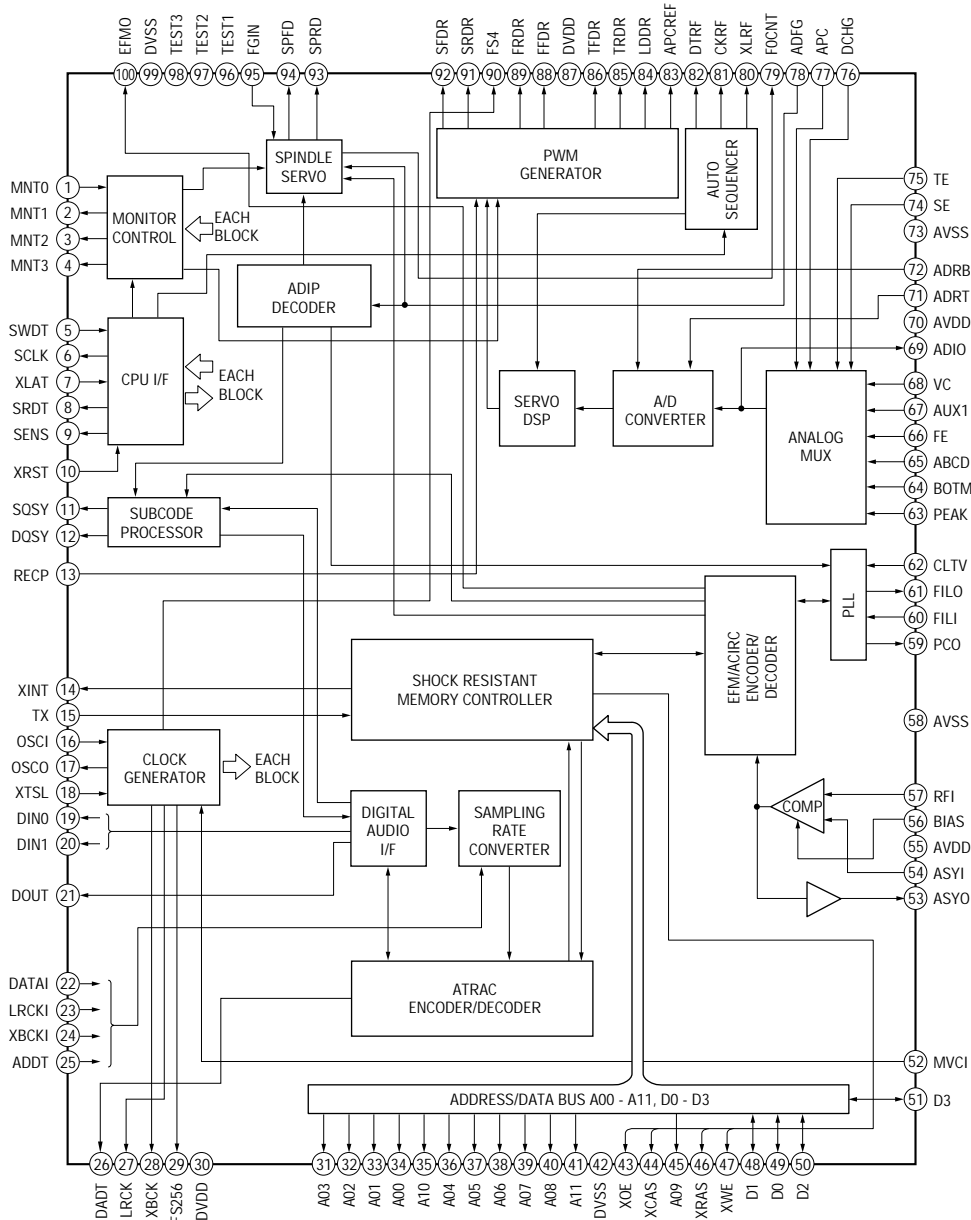


– BD (MD) BOARD –

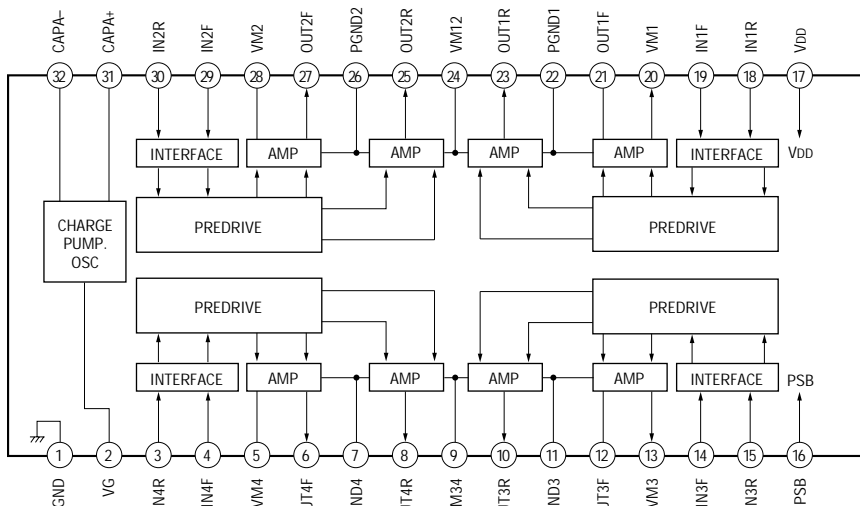
IC101 CXA2523AR



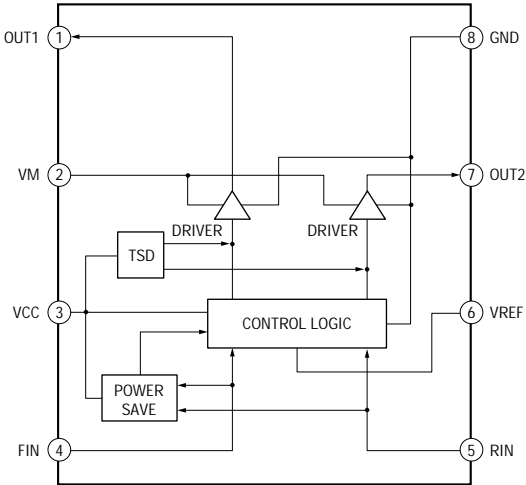
IC121 CXD2654R



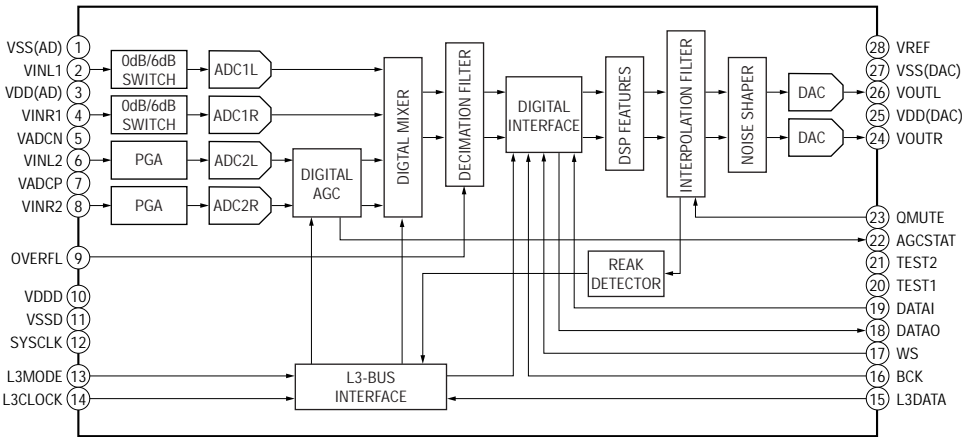
IC152 BH6511FS-E2



IC172 BA6287F

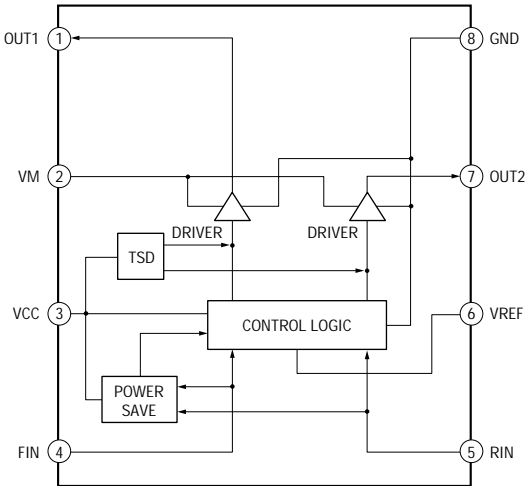


IC201 UDA1341TS/N2



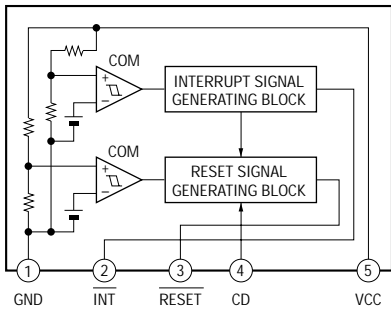
– MECH RELAY BOARD –

IC505, 551 BA6287F



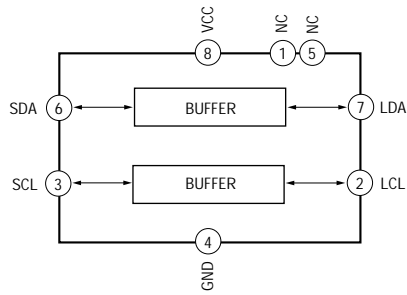
– RELAY BOARD –

IC451 M62016L



– MAIN BOARD –

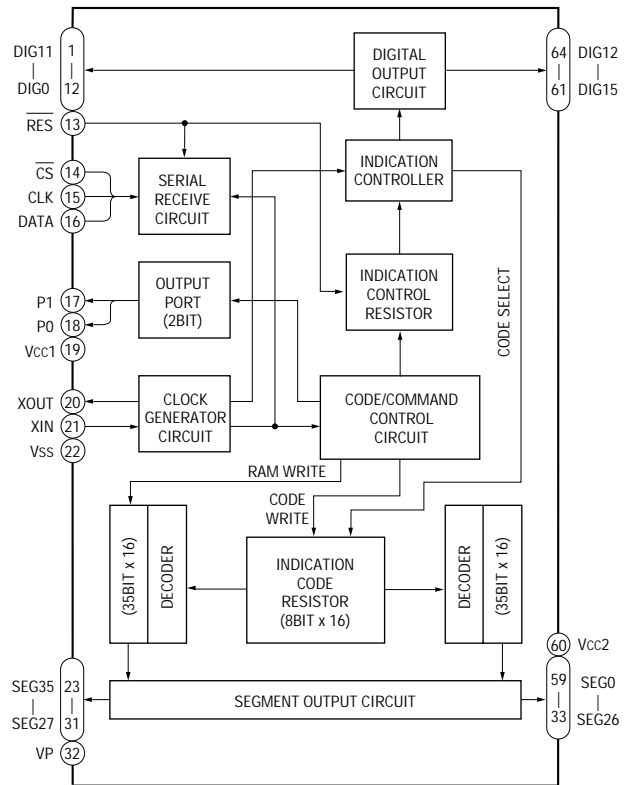
IC204 P82B715PN



– CD JOG BOARD/MD JOG BOARD –

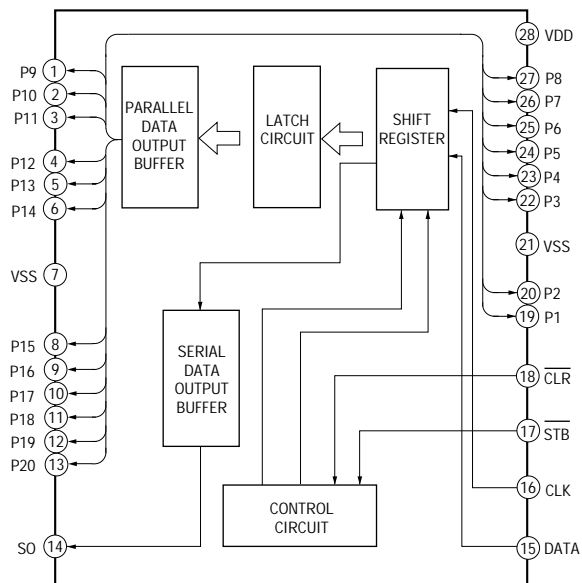
IC661 NJU3718G (TE2) (CD JOG Board)

IC802 NJU3718G (TE2) (MD JOG Board)



– CD DISPLAY BOARD –

IC601 M66004M8FP



6-29. IC PIN FUNCTION DESCRIPTION

• BD (MD) BOARD IC101 CXA2523AR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2654R (IC121)
17	SCLK	I	Serial data transfer clock signal input from the CXD2654R (IC121)
18	XLAT	I	Serial data latch pulse signal input from the CXD2654R (IC121)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2654R (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2654R (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2654R (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz \pm 1 kHz) output to the CXD2654R (IC121)
33	AUX	O	Auxiliary signal (I ₃ signal/temperature signal) output to the CXD2654R (IC121)
34	FE	O	Focus error signal output to the CXD2654R (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2654R (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2654R (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2654R (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2654R (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **BD (MD) BOARD IC121 CXD2654R**
(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	Focus OK signal output to the MD mechanism controller (IC316) “H” is output when focus is on (“L”: NG)
2	MNT1 (SHOCK)	O	Track jump detection signal output to the MD mechanism controller (IC316)
3	MNT2 (XBUSY)	O	Busy monitor signal output to the MD mechanism controller (IC316)
4	MNT3 (SLOCK)	O	Spindle servo lock status monitor signal output to the MD mechanism controller (IC316)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC316)
6	SCLK	I (S)	Serial data transfer clock signal input from the MD mechanism controller (IC316)
7	XLAT	I (S)	Serial data latch pulse signal input from the MD mechanism controller (IC316)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC316)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC316)
10	$\overline{\text{XRST}}$	I (S)	Reset signal input from the MD mechanism controller (IC316) “L”: reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC316) “L” is output every 13.3 msec Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD mechanism controller (IC316) “L” is output every 13.3 msec Almost all, “H” is output
13	RECP	I	Laser power selection signal input from the MD mechanism controller (IC316) “H”: recording mode, “L”: playback mode
14	XINT	O	Interrupt status output to the MD mechanism controller (IC316)
15	TX	I	Recording data output enable signal input from the MD mechanism controller (IC316) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input terminal
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal
18	XTSL	I	Input terminal for the system clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (fixed at “H” in this set)
19	DIN0	I	Digital audio signal input terminal when recording mode (for CS/BS optical digital in and CD digital playback signal)
20	DIN1	I	Digital audio signal input terminal when recording mode Not used (fixed at “L”)
21	DOUT	O	Digital audio signal output terminal when playback mode (for digital optical out/digital coaxial out) Not used (open)
22	DATAI	I	Serial data input terminal Not used (fixed at “L”)
23	LRCKI	I	L/R sampling clock signal (44.1 kHz) input terminal Not used (fixed at “L”)
24	XBCKI	I	Bit clock signal (2.8224 MHz) input terminal Not used (fixed at “L”)
25	ADDT	I	Recording data input from the A/D, D/A converter (IC201)
26	DADT	O	Playback data output to the A/D, D/A converter (IC201)
27	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201)
28	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201)
29	FS256	O	Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201)
30	DVDD	—	Power supply terminal (+3.3V) (digital system)
31 to 34	A03 to A00	O	Address signal output to the D-RAM (IC124)
35	A10	O	Address signal output to the external D-RAM Not used (open)
36 to 40	A04 to A08	O	Address signal output to the D-RAM (IC124)
41	A11	O	Address signal output to the external D-RAM Not used (open)
42	DVSS	—	Ground terminal (digital system)
43	$\overline{\text{XOE}}$	O	Output enable signal output to the D-RAM (IC124) “L” active
44	$\overline{\text{XCA\overline{S}}}$	O	Column address strobe signal output to the D-RAM (IC124) “L” active

* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
45	A09	O	Address signal output to the D-RAM (IC124)
46	$\overline{\text{X}}\text{RAS}$	O	Row address strobe signal output to the D-RAM (IC124) “L” active
47	$\overline{\text{X}}\text{WE}$	O	Write enable signal output to the D-RAM (IC124) “L” active
48	D1	I/O	Two-way data bus with the D-RAM (IC124)
49	D0	I/O	
50	D2	I/O	
51	D3	I/O	
52	MVCI	I (S)	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
53	ASYO	O	Playback EFM full-swing output terminal
54	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
55	AVDD	—	Power supply terminal (+3.3V) (analog system)
56	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
57	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
58	AVSS	—	Ground terminal (analog system)
59	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
61	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
62	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
63	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
64	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
65	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
66	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
67	AUX1	I (A)	Auxiliary signal (I ₃ signal/temperature signal) input from the CXA2523AR (IC101)
68	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
69	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
70	AVDD	—	Power supply terminal (+3.3V) (analog system)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
73	AVSS	—	Ground terminal (analog system)
74	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
75	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	TEST4	I (A)	Not used (fixed at “H”)
78	ADFG	I (S)	ADIP duplex FM signal (22.05 kHz \pm 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial data latch pulse signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial data transfer clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing serial data output to the CXA2523AR (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	TEST0	O	Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC152)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC152)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC152)
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC152)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)

* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC152)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC152)
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC152)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC152)
95	FGIN	I (S)	FG signal input terminal Not used (fixed at “L”)
96	TEST1	I	Input terminal for the test (fixed at “L”)
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

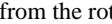
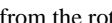
* I (S) stands for schmitt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• BD (MD) BOARD IC316 M30624MG-205B (MD MECHANISM CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	WMOUT	O	Serial data output to the equipment connected to MD WALKMAN LINK jack (J1)
2	WMCLK	I	Serial data transfer clock signal input from the equipment connected to MD WALKMAN LINK jack (J1)
3	LEVEL-L	O	Left channel level output terminal Not used (open)
4	LEVEL-R	O	Right channel level output terminal Not used (open)
5	LEDDATA	O	Serial data output to the LED driver IC (IC802)
6	—	O	Not used (open)
7	LEDCLK	O	Serial data transfer clock signal output to the LED driver IC (IC802)
8	BYTE	I	External data bus line byte selection signal input “L”: 16 bit, “H”: 8 bit (fixed at “L”)
9	CNVSS	—	Ground terminal
10	XIN-T	I	Sub system clock input terminal (32.768 kHz) Not used (fixed at “L”)
11	XOUT-T	O	Sub system clock output terminal (32.768 kHz) Not used (pull down)
12	$\overline{\text{S.RST}}$	I	System reset signal input from the reset signal generator (IC451) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
13	XOUT	O	Main system clock output terminal (10 MHz)
14	GND	—	Ground terminal
15	XIN	I	Main system clock input terminal (10 MHz)
16	+3.3V	—	Power supply terminal (+3.3V)
17	NMI	I	Non-maskable interrupt input terminal (fixed at “H” in this set)
18	$\overline{\text{P.DOWN}}$	I	Power down detection signal input terminal “L”: power down, normally: “H”
19	WMSYNC	I	Sync signal input from the equipment connected to MD WALKMAN LINK jack (J1)
20	$\overline{\text{I2CBUSY}}$	O	Busy signal output for the I2C bus “L” active
21	L3CLK	O	L3 bus data transfer clock signal output to the A/D, D/A converter (IC201)
22	L3DATA	O	L3 bus data output to the A/D, D/A converter (IC201)
23	—	O	Not used (open)
24	ELEUP	O	Mini-disc elevator up/down motor control signal output to the motor driver IC (IC551) “H” active *1
25	—	O	Not used (open)
26	ELEDOWN	O	Mini-disc elevator up/down motor control signal output to the motor driver IC (IC551) “H” active *1
27	SQSY	I	Subcode Q sync (SCOR) input from the CXD2654R (IC121) “L” is input every 13.3 msec Almost all, “H” is input
28	RESET SW	I	Reset switch (S571) input terminal “L”: reset
29	I2CCLK	I/O	Shift clock signal input/output terminal for the I2C bus
30	I2CDATA	I/O	Serial data input/output terminal for the I2C bus
31	FLDATA	O	Display serial data output to the FL driver IC (IC801)
32	CNVSS	—	Ground terminal
33	FLCLK	O	Display serial data transfer clock signal output to the FL driver IC (IC801)
34	$\overline{\text{FLCS}}$	O	Display serial chip select signal output to the FL driver IC (IC801) “L” active
35	SWDT	O	Writing data output to the CXD2654R (IC121)
36	SRDT	I	Reading data input from the CXD2654R (IC121)

*1 Mini-disc elevator up/down motor (M571) control

Terminal \ Mode	Elevator Up	Elevator Down	Stop	Brake
ELEUP (pin ②④)	“H”	“L”	“L”	“H”
ELEDOWN (pin ②⑥)	“L”	“H”	“L”	“H”

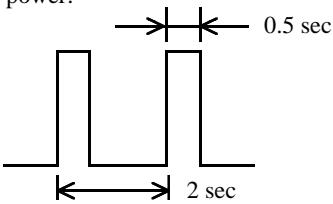
Pin No.	Pin Name	I/O	Function
37	SCLK	O	Serial clock signal output to the CXD2654R (IC121)
38	OPTSEL0	O	Selection signal output for the optical input signal Not used (open)
39	SENSOR	I	Elevator position detect sensor (PH570) input terminal
40	SENSOR2	I	Elevator position detect sensor (PH571) input terminal
41	HEADDOWN	O	Over write head up/down motor control signal output to the motor driver IC (IC172) “H” active *2
42	HEADUP	O	Over write head up/down motor control signal output to the motor driver IC (IC172) “H” active *2
43	JOG0	I	Jog dial pulse input from the rotary encoder (S801 ) (A phase input)
44	JOG1	I	Jog dial pulse input from the rotary encoder (S801 ) (B phase input)
45	WMINV	O	Clock signal phase inversion control signal output to the equipment connected to MD WALKMAN LINK jack (J1)
46	$\overline{\text{LEDLAT}}$	O	Serial data latch pulse output to the LED driver IC (IC802) “L” active
47	OPTSEL1	O	CS/BS optical digital in signal or CD digital playback signal selection output to the digital input selector (IC405) “L”: CS/BS optical digital in signal, “H”: CD digital playback signal
48	$\overline{\text{DARST}}$	O	Reset signal output terminal “L”: reset
49	MUTE	O	Audio line muting control signal output terminal “L”: line muting on Not used (pull down)
50	STB	O	Power control strobe signal output for the external device “L”: standby mode, “H”: power on Not used
51	CHACK-IN	I	Detection input from the disc loading in detect switch (S573) “L”: disc chucking, others: “H”
52	HOME	I	Detection input from the elevator home position detect switch (S570) “L”: home position, others: “H”
53	PACK-OUT	I	Detection input from the disc loading out detect switch (S572) “L”: loading out position, others: “H”
54	LDIN	O	Mini-disc loading motor control signal output to the motor driver IC (IC550) “H” active *3
55	LDOUT	O	Mini-disc loading motor control signal output to the motor driver IC (IC550) “H” active *3
56	LD-LOW	I	Control signal output for the loading motor drive voltage “H” active Not used (open)
57	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”: laser on
58	REFLECT	I	Detection input from the disc reflection rate detect switch (S682) “L”: high reflection rate disc, “H”: low reflection rate disc
59	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S683) “H”: write protect
60	PB-P	I	Detection input from the playback position detect switch “L” active Not used (open)
61	$\overline{\text{REC/PB}}$	O	Not used (open)
62	+3.3V	—	Power supply terminal (+3.3V)
63	LIMIT-IN	I	Detection input from the sled limit-in detect switch (S681) The optical pick-up is inner position when “L”
64	GND	—	Ground terminal

*2 Over write head up/down motor (M4) control

Terminal \ Mode	Head Up	Head Down	Stop	Brake
HEADUP (pin ④②)	“H”	“L”	“L”	“H”
HEADDOWN (pin ④①)	“L”	“H”	“L”	“H”

*3 Mini-disc loading motor (M572) control

Terminal \ Mode	Loading	Eject	Stop	Brake
LDIN (pin ⑤④)	“H”	“L”	“L”	“H”
LDOUT (pin ⑤⑤)	“L”	“H”	“L”	“H”

Pin No.	Pin Name	I/O	Function
65	MOD	O	<p>Laser modulation select signal output to the HF module switch circuit</p> <p>Playback power: "H", Stop: "L",</p> <p>Recording power:</p> 
66	XLATCH	O	Serial data latch pulse signal output to the CXD2654R (IC121)
67	WRPWR	O	Laser power select signal output to the CXD2654R (IC121) and HF module switch circuit "L": playback mode, "H": recording mode
68	LOADING SEL: L	I	Setting terminal for the loading control method "H": not used IN switch (fixed at "H")
69	L3MODE	O	L3 bus mode control signal output to the A/D, D/A converter (IC201)
70	C1E	I	Not used (fixed at "L")
71	C1F	I	Not used (fixed at "L")
72	SCTX	O	Recording data output enable signal output to the CXD2654R (IC121) and over write head driver (IC181) Writing data transmission timing output (Also serves as the magnetic head on/off output)
73	XINT	I	Interrupt status input from the CXD2654R (IC121)
74	REC-P	O	Detection input from the recording position detect switch "L" active Not used (fixed at "H")
75	DQSY	I	Digital In U-bit CD format subcode Q sync (SCOR) input from the CXD2654R (IC121) "L" is input every 13.3 msec Almost all, "H" is input
76	—	I	Not used (open)
77	<u>DIGRST</u>	O	Reset signal output to the CXD2654R (IC121) and BH6511FS (IC152) "L": reset
78	SENS	I	Internal status (SENSE) input from the CXD2654R (IC121)
79	MNT3	I	Spindle servo lock status monitor signal input from the CXD2654R (IC121)
80	MNT2	I	Busy signal input from the CXD2654R (IC121)
81	MNT1	I	Track jump detection signal input from the CXD2654R (IC121)
82	MNT0	I	Focus OK signal input from the CXD2654R (IC121) "H" is input when focus is on ("L": NG)
83	SENSOR SW	O	Control signal output for the sensor gain selection
84	DISC5	I	Detection input from the disc 5 detect switch (S5) "L": set disc 5
85	DISC1	I	Detection input from the disc 1 detect switch (S1) "L": set disc 1
86	DISC2	I	Detection input from the disc 2 detect switch (S2) "L": set disc 2
87	SCL	O	Serial clock signal output to the EEPROM (IC171)
88	SDA	I/O	Two-way data bus with the EEPROM (IC171)
89	DISC4	I	Detection input from the disc 4 detect switch (S4) "L": set disc 4
90	DISC3	I	Detection input from the disc 3 detect switch (S3) "L": set disc 3
91	HEADSW- DOWN	I	Detection input from the over write head down position detect switch (S7) "L": down position
92	HEADSW-UP	I	Detection input from the over write head up position detect switch (S6) "L": up position
93	KEY3	I	Key input terminal (A/D input) S807 to S812 (MD DISC1/2/3/4/5, DISC SKIP) keys input
94	KEY2	I	Key input terminal (A/D input) S803 to S806 (§, REC MODE, r REC, MD WALKMAN LINK) keys input

Pin No.	Pin Name	I/O	Function
95	KEY1	I	Key input terminal (A/D input) S603, S604, S606 to S609 (PLAY MODE, REPEAT, □, ▷, ◀, ▶) keys input
96	AVSS	—	Ground terminal (for A/D converter)
97	KEY0	I	Key input terminal (A/D input) S602, S610 to S613, S802 (1/ALL, NAME EDIT, MENU/NO, ENTER/YES, CLEAR, DISPLAY) keys input
98	VREF	I	Reference voltage (+3.3V) input terminal (for A/D converter)
99	+3.3V	—	Power supply terminal (+3.3V)
100	WMIN	I	Serial data input from the equipment connected to MD WALKMAN LINK jack (J1)

• MICROCOMPUTER BOARD IC300 μ PD784215AYGF-501-3BA
(MASTER CONTROLLER (CD MECHANISM CONTROL))







Pin No.	Pin Name	I/O	Function
1, 2	OPEN	O	Not used (open)
3	$\overline{\text{LEDLAT}}$	O	Serial data latch pulse output to the LED driver IC (IC661)
4	$\overline{\text{DRVCS}}$	O	Chip select signal output to the FL driver IC (IC601) "L" active
5	$\overline{\text{RE}}$	O	Output enable signal output to the static RAM (IC302) "L" active
6	$\overline{\text{WE}}$	O	Data write enable signal output to the static RAM (IC302) "L" active
7	$\overline{\text{DRVRST}}$	O	Reset signal output to the FL driver IC (IC601) and LED driver IC (IC661) "L": reset
8	OPEN	O	Not used (open)
9	VDD	—	Power supply terminal (+5V)
10	$\overline{\text{BDRST}}$	O	Reset signal output to the CXD2587Q (IC101) and BA5974FP (IC102) on the CD block "L": reset
11	$\overline{\text{BDPWR}}$	O	Power on/off control signal output terminal "L": power on Not used (open)
12	DRV DAT	O	Serial data output to the FL driver IC (IC601) and LED driver IC (IC661)
13	DRV CLK	O	Serial data transfer clock signal output to the FL driver IC (IC601) and LED driver IC (IC661)
14	$\overline{\text{LOD POS}}$	O	CD loading motor (M702) control signal output to the motor driver IC (IC702) "L" active *1
15	$\overline{\text{LOD NEG}}$	O	CD loading motor (M702) control signal output to the motor driver IC (IC702) "L" active *1
16	$\overline{\text{CLP POS}}$	O	CD elevator up/down motor (M701) control signal output to the motor driver IC (IC701) "L" active *2
17	$\overline{\text{CLP NEG}}$	O	CD elevator up/down motor (M701) control signal output to the motor driver IC (IC701) "L" active *2
18	$\overline{\text{OUT SW}}$	I	Detection input from the tray open/close detect switch (S708) on the CD mechanism block "L": when tray is open, "H": when tray is close
19	$\overline{\text{IN SW}}$	I	Detection input from the tray open/close detect switch (S704) on the CD mechanism block "L": when tray is close, "H": when tray is open
20	$\overline{\text{MIDOUT SW}}$	I	Detection input from the mid out detect switch (S701) on the CD mechanism block "L": when tray is going to open or close
21	$\overline{\text{MID SW}}$	I	Detection input from the mid in detect switch (S703) on the CD mechanism block "L": when sub tray move between tray and stocker
22	TEST	I	Test input terminal (fixed at "L")
23	ENCODE0	I	Detection input from the disc tray address detect rotary encoder (S707) on the CD mechanism block
24	ENCODE1	I	
25	ENCODE2	I	
26	$\overline{\text{INIT SW}}$	I	Detection input from the INIT detect switch (S705) on the CD mechanism block "L": when elevator down to bottom, others: "H"
27	$\overline{\text{ADJ}}$	I	Setting terminal for the CD test mode Normally: fixed at "H" ("L": test mode)
28	$\overline{\text{AMUTE}}$	O	Analog muting on/off control signal output terminal Not used (open)
29	DATA	O	Serial data output to the CXD2587Q (IC101) on the CD block
30	CLK	O	Serial data transfer clock signal output to the CXD2587Q (IC101) on the CD block
31	$\overline{\text{XLT}}$	O	Serial data latch pulse output to the CXD2587Q (IC101) on the CD block
32	PANEL SW	I	Detection input from the CD tray door open/close detect switch (S702) "L": when CD lid is open, "H": when CD lid is close

*1 CD loading motor (M702) control

Mode Terminal	Loading	Eject	Stop	Brake
$\overline{\text{LOD NEG}}$ (pin ⑱)	"L"	"H"	"H"	"L"
$\overline{\text{LOD POS}}$ (pin ⑭)	"H"	"L"	"H"	"L"

*2 CD elevator up/down motor (M701) control

Mode Terminal	Elevator Up	Elevator Down	Stop	Brake
$\overline{\text{CLP NEG}}$ (pin ⑰)	"L"	"H"	"H"	"L"
$\overline{\text{CLP POS}}$ (pin ⑯)	"H"	"L"	"H"	"L"

Pin No.	Pin Name	I/O	Function
33	BUSD0	O	CD digital signal selection control signal output terminal
34	BUSD1	O	Not used (open)
35	BUSD2	O	Not used (open)
36	I2CHELP (BUSD3)	O	Busy signal output for the I2C bus "L" active
37	VDD	—	Power supply terminal (+5V)
38	X2	O	Main system clock output terminal (12.5 MHz)
39	X1	I	Main system clock input terminal (12.5 MHz)
40	VSS	—	Ground terminal
41	XT2	O	Sub system clock output terminal Not used (open)
42	XT1	I	Sub system clock input terminal Not used (fixed at "L")
43	RESET	I	System reset signal input terminal (Power down detect signal used as a reset signal) "L": reset or power down For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
44	I2CHELP (BUSCLK)	I	Busy signal input for the I2C bus "L" active
45	BUSBSY	O	Busy signal output when bus data in/out operation Not used (open)
46	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD2587Q (IC101) on the CD block
47	DQSY	I	Data read enable signal input terminal Not used (open)
48	AC CUT	I	Power down detection input terminal "L": power down
49	JOG0	I	Jog dial pulse input from the rotary encoder (S681  (A phase input)
50	JOG1	I	Jog dial pulse input from the rotary encoder (S681  (B phase input)
51	AVDD	—	Power supply terminal (+5V) (for A/D converter analog system)
52	AVREF0	I	Reference voltage (+5V) input terminal (for A/D converter)
53	KEY0	I	Key input terminal (A/D input) S604, S613, S661 to S665 (REPEAT, CLEAR, CD 1/2/3/4/5) keys input
54	KEY1	I	Key input terminal (A/D input) S611, S612, S671 to S676 (MENU/NO, ENTER/YES,  CD 1/2/3/4/5, DISC SKIP) keys input
55	KEY2	I	Key input terminal (A/D input) S602, S603, S606 to S610, S636 (1/ALL, PLAY MODE,  ,  ,  , NAME EDIT, DISPLAY) keys input
56	SELECT0	I	Setting terminal for the Japanese letter input functions "L": input possible (fixed at "H" in this set)
57	SELECT1	I	Setting terminal for the separate/complete type setting of CD section and others section (amplifier, tuner, etc.) "L": separate type, "H": complete type (fixed at "L" in this set)
58	SELECT2	I	GFS NG when search mode (A/D input)
59	DISC SENS	I	Detection input from the disc in detect sensor (D704 and Q703) on the CD mechanism block "H": disc detected
60	CNT SW	I	Detection input from the count detect switch (S706) on the CD mechanism block "L": when elevator up/down each sub tray stock position
61	AVSS	—	Ground terminal (for A/D converter analog system)
62	MECHA JIG	I	Test input terminal (fixed at "L")
63	CHECK	O	Not used (open)
64	AVREF1	I	Reference voltage (+5V) input terminal (for D/A converter)
65	SRDT	I	Serial data input terminal Not used (open)
66	OPEN	O	Not used (open)
67	SCLK	O	Serial data transfer clock signal output terminal Not used (open)
68	SUBQ	I	Subcode Q data input from the CXD2587Q (IC101) on the CD block
69	OPEN	O	Not used (open)
70	SQCLK	O	Subcode Q data reading clock signal output to the CXD2587Q (IC101) on the CD block

Pin No.	Pin Name	I/O	Function
71	LPH (XMODE)	O	Laser power control signal output to the CXA2568M (IC103) on the CD block
72	SENSE2	I	Monitor detection signal input of the internal status Not used (open)
73	I2CDATA	I/O	Data input/output terminal for the I2C bus
74	SENSE	I	Internal status detection monitor input from the CXD2587Q (IC101) on the CD block
75	I2CCLK	I/O	Shift clock signal input/output terminal for the I2C bus
76 to 83	A0 to A7	O	Address signal output to the static RAM (IC302)
84 to 91	D0 to D7	I/O	Two-way data bus with the static RAM (IC302)
92 to 98	A8 to A14	O	Address signal output to the static RAM (IC302)
99	A15	O	Address signal output to the external device Not used (open)
100	VSS	—	Ground terminal

SECTION 7



EXPLODED VIEWS

NOTE:

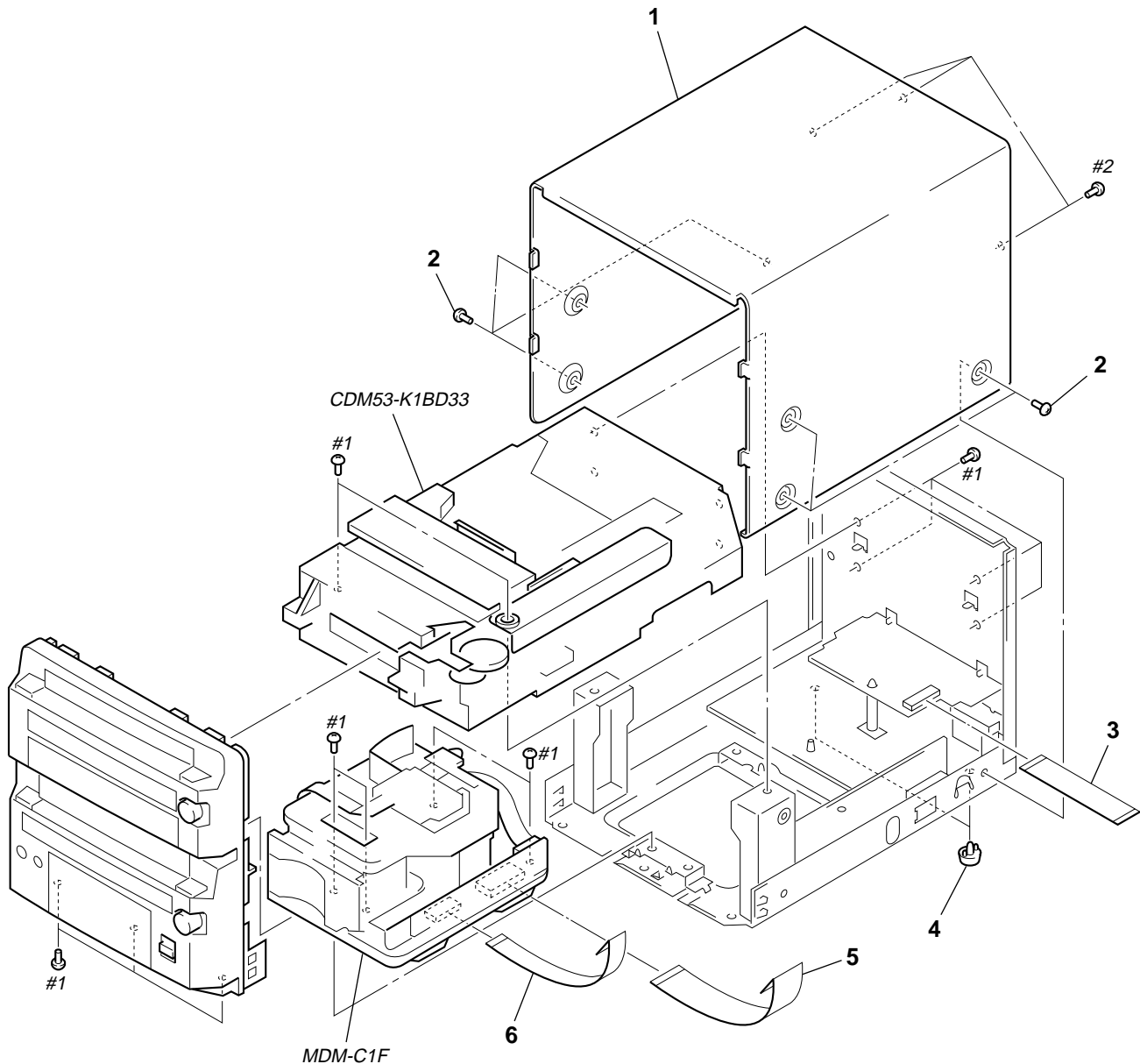
- XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)

Parts Color Cabinet's Color

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

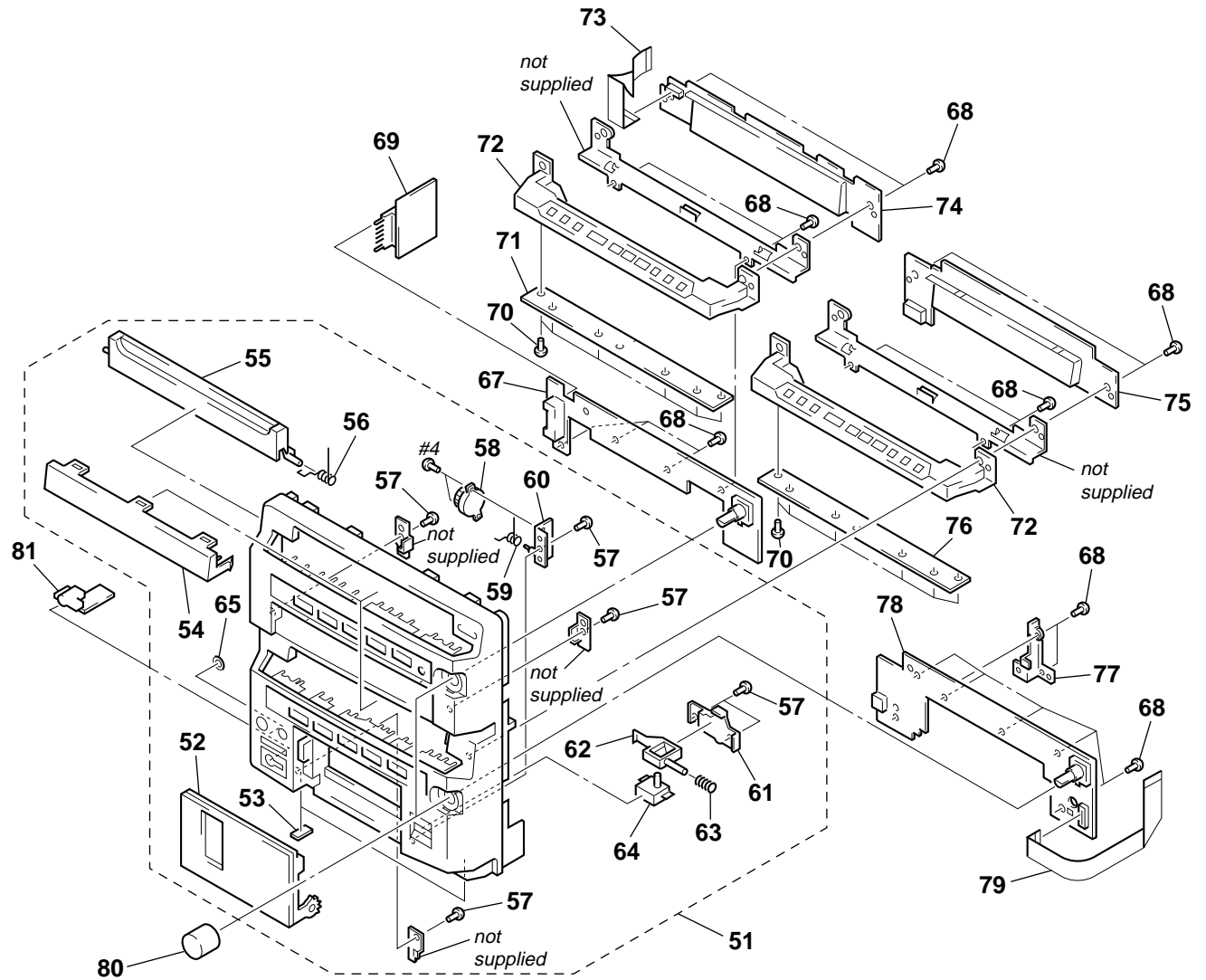
The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

(1) CASE SECTION



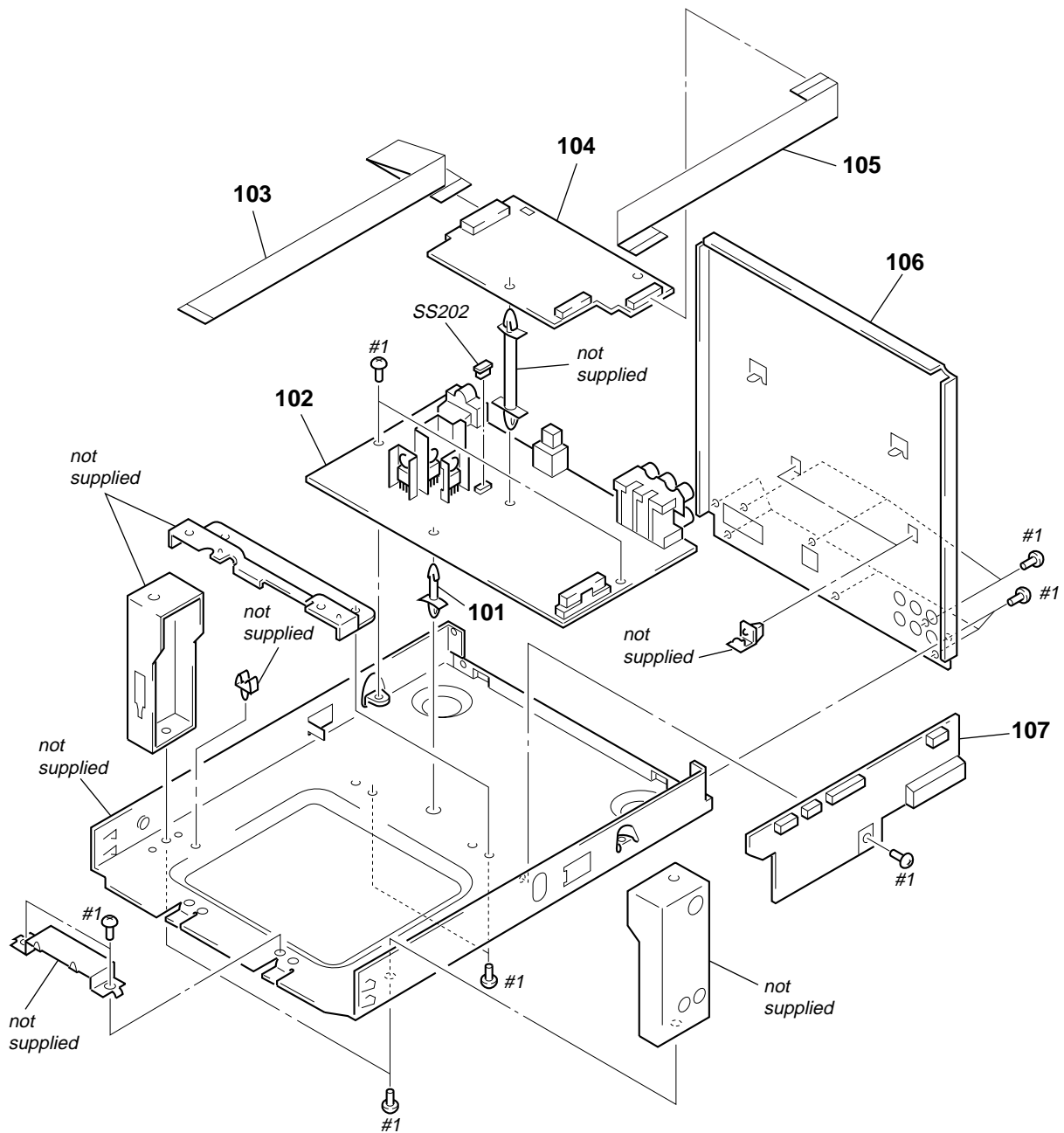
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 1	4-213-360-01	CASE		4	4-965-822-01	FOOT	
2	3-363-099-11	SCREW (CASE 3 TP2)		5	1-773-181-11	WIRE (FLAT TYPE) (23 CORE)	
3	1-790-267-11	WIRE (FLAT TYPE) (19 CORE)		6	1-790-263-11	WIRE (FLAT TYPE) (13 CORE) (130mm)	

(2) FRONT PANEL SECTION



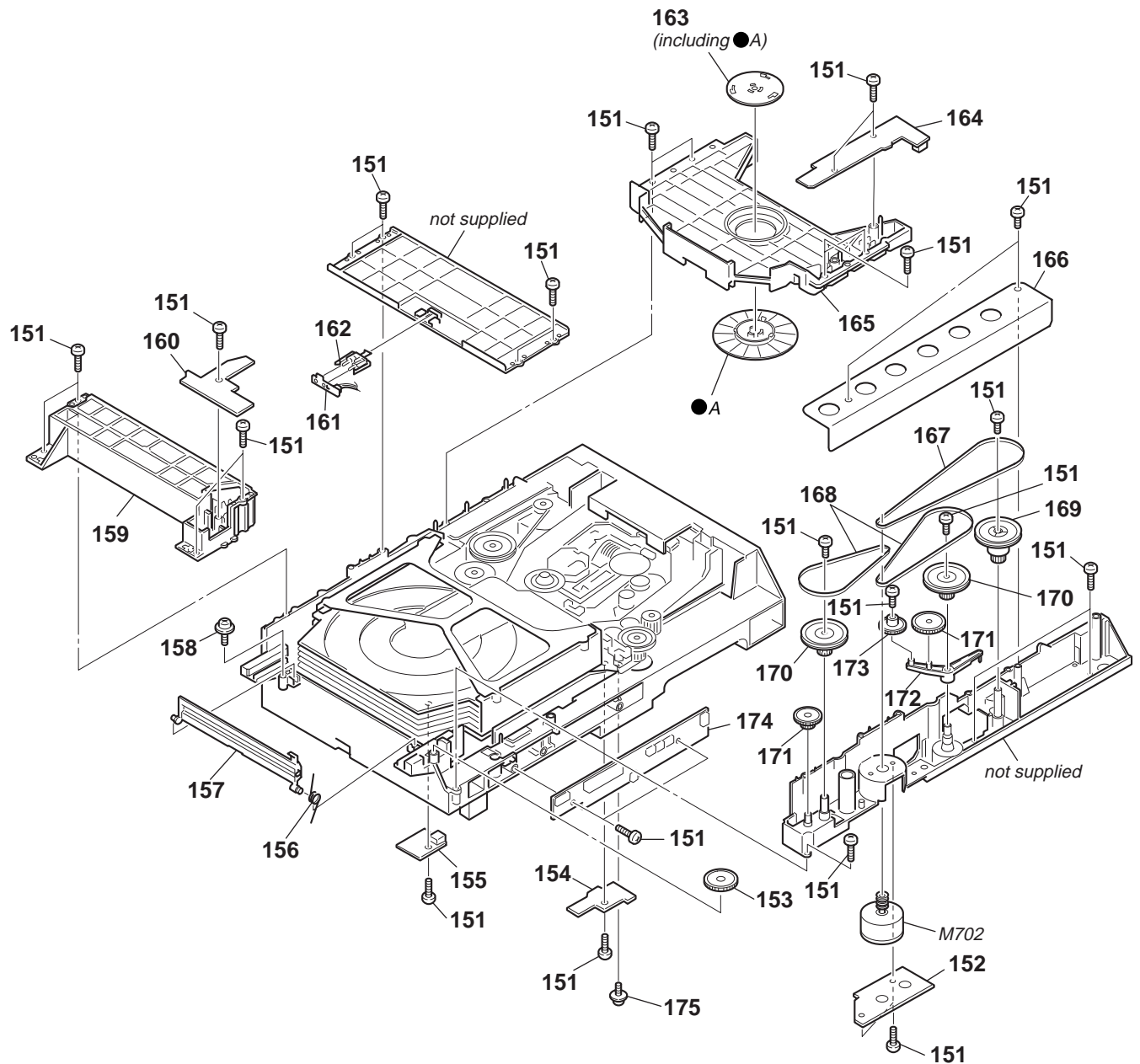
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-4950-483-1	PANEL ASSY, FRONT		* 67	A-4724-393-A	CD JOG BOARD, COMPLETE	
52	X-4950-488-1	LID (MD) ASSY		68	4-951-620-11	SCREW (2.6X10), +BVTP	
* 53	4-930-336-71	FOOT (FELT)		* 69	1-671-818-11	CONNECTOR BOARD	
54	4-213-326-01	WINDOW (FL)		70	4-908-618-21	SCREW (+BTP) (2X6)	
55	X-4950-486-1	LID (CD) ASSY		* 71	A-4724-396-A	CD SW BOARD, COMPLETE	
56	4-213-336-01	SPRING (LID-CD), TOGGLE		72	X-4950-484-1	BUTTON (TOP 1) ASSY	
57	4-951-620-01	SCREW (2.6X8), +BVTP		73	1-790-265-12	WIRE (FLAT TYPE) (11 CORE)	
* 58	3-973-975-21	DAMPER, OIL		* 74	A-4724-390-A	CD DISPLAY BOARD, COMPLETE	
59	4-213-351-01	SPRING (LID-MD), TOGGLE		* 75	A-4724-391-A	MD DISPLAY BOARD, COMPLETE	
* 60	X-4950-489-1	BRACKET (LID-MD) B ASSY		* 76	A-4724-397-A	MD SW BOARD, COMPLETE	
61	4-213-949-01	COVER (OPEN)		* 77	4-213-353-01	BRACKET (PLUG)	
62	4-213-342-01	LEVER (OPEN)		* 78	A-4724-394-A	MD JOG BOARD, COMPLETE	
63	4-213-343-01	SPRING (OPEN), COMPRESSION		79	1-790-264-11	WIRE (FLAT TYPE) (13 CORE) (179mm)	
64	4-213-341-01	BUTTON (OPEN)		80	4-213-333-01	KNOB (JOG)	
65	3-701-440-21	WASHER, 3.5		* 81	1-671-822-11	WM BOARD	

(3) CHASSIS SECTION



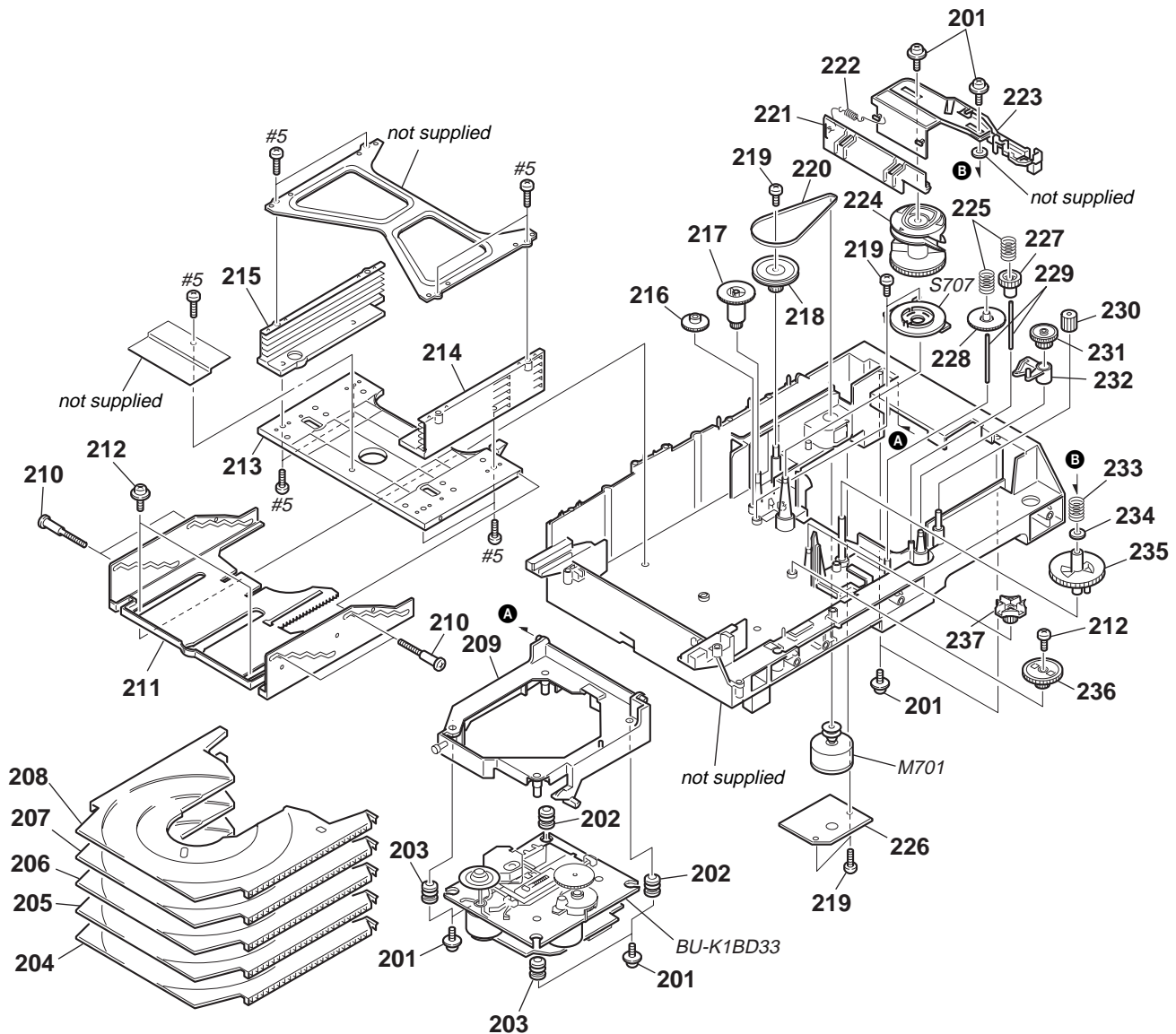
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 101	3-346-265-11	HOLDER, PC BOARD		105	1-790-266-11	WIRE (FLAT TYPE) (17 CORE)	
* 102	A-4724-389-A	MAIN BOARD, COMPLETE		* 106	4-213-359-11	PANEL, BACK	
103	1-790-268-11	WIRE (FLAT TYPE) (21 CORE)		* 107	A-4724-392-A	RELAY BOARD, COMPLETE	
* 104	A-4724-482-A	MICROCOMPUTER BOARD, COMPLETE		SS202	1-569-972-21	SOCKET, SHORT 2P	

(4) CD MECHANISM DECK SECTION-1
(CDM53-K1BD33)



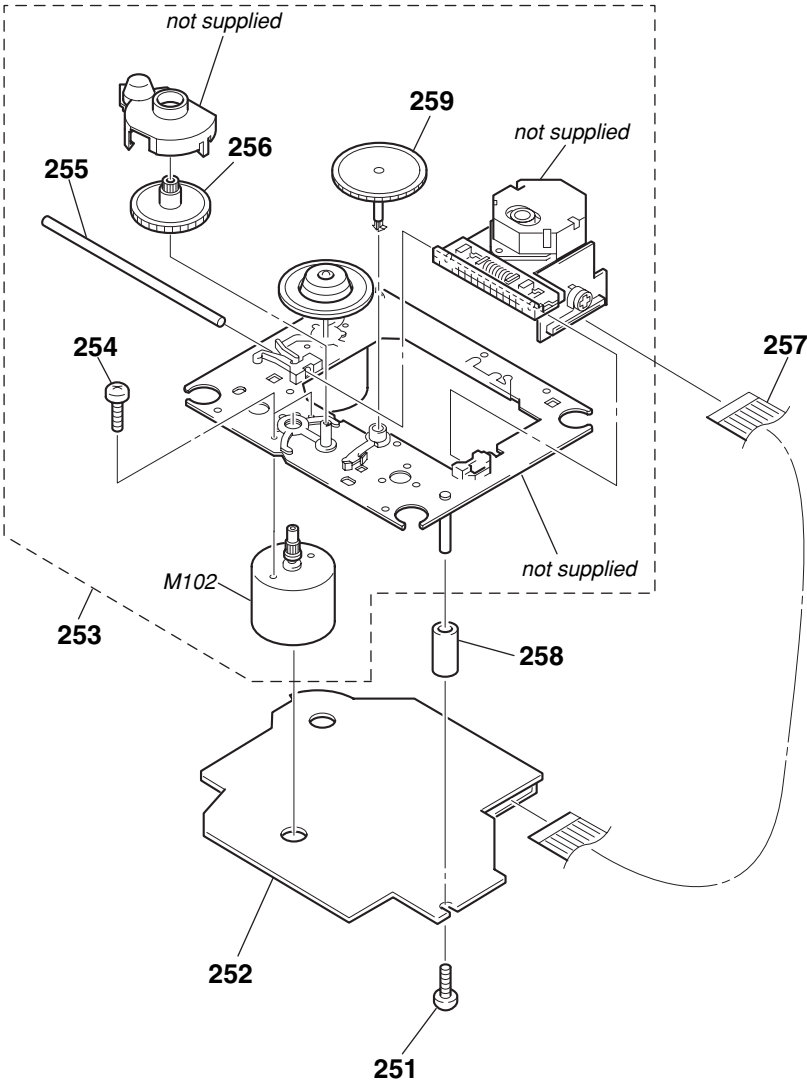
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	4-951-620-41	SCREW (2.6), +BVTP		* 164	1-671-505-11	IN SW BOARD	
* 152	1-671-508-11	LOAD MOTOR BOARD		165	A-4672-623-C	BASE (MAGNET) ASSY, FITTING	
153	4-211-215-01	GEAR (EJECT)		* 166	4-214-129-01	COVER	
* 154	1-671-502-11	INIT/COUNT SW BOARD		167	4-211-235-01	BELT (COMMUNICATION)	
* 155	1-671-504-11	SENSOR BOARD		168	4-211-236-01	BELT (LOADING)	
156	4-212-676-03	SPRING (LID), TORSIONOR		169	4-211-231-01	PULLEY (MODE)	
157	4-212-674-01	LID (DISC)		170	4-211-214-01	PULLEY (LD)	
158	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		171	4-211-227-01	GEAR (LD DECELERATION)	
159	A-4672-622-E	BASE (GUIDE) ASSY, FITTING		172	4-211-228-01	LEVER (GOOSENECK)	
* 160	1-671-503-11	OUT SW BOARD		173	4-214-130-01	GEAR (TRAY)	
* 161	1-671-789-11	SENSOR 2 BOARD		* 174	1-671-506-11	CONNECTOR (CD) BOARD	
162	4-964-461-02	HOLDER (SENSOR)		175	3-341-549-21	SCREW (2.6X12) (DIA.7.5), +PTPWH	
163	A-4672-600-B	MAGNET ASSY, CHUCKING (including ●A)		M702	X-4950-342-1	MOTOR (LOADING) ASSY	

(5) CD MECHANISM DECK SECTION-2
(CDM53-K1BD33)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		221	4-212-677-01	SLIDER (SHUTTER)	
202	4-211-871-11	INSULATOR (M) (BLUE)		222	4-212-678-01	SPRING (SHUTTER), TENSION	
203	4-211-871-01	INSULATOR (M) (BLACK)		223	4-211-233-01	SLIDER (SELECTION)	
204	4-211-212-41	TRAY (SUB)		224	4-211-230-01	GEAR (CHUCKING)	
205	4-211-212-31	TRAY (SUB)		225	4-211-245-01	SPRING, COMPRESSION	
206	4-211-212-21	TRAY (SUB)		* 226	1-671-507-11	CLAMP MOTOR BOARD	
207	4-211-212-11	TRAY (SUB)		227	4-211-221-01	GEAR (LD MOVABLE)	
208	4-211-212-01	TRAY (SUB)		228	4-211-217-02	GEAR (SELECTION)	
209	X-4950-322-2	HOLDER (BU) ASSY		229	4-211-242-01	SHAFT (SELECTION GEAR)	
210	4-211-244-01	SCREW, STEP		230	4-211-240-01	GEAR (LD DECELERATION B)	
211	4-211-223-01	SLIDER (U/D)		231	4-211-216-01	GEAR (RELAY)	
212	4-933-134-01	SCREW (+PTPWH M2.6X6)		232	4-211-241-01	LEVER (SELECTION)	
213	4-211-224-02	BASE (STOCKER), FITTING		233	4-216-879-01	SPRING (GEAR A), COMPRESSION	
214	4-211-211-01	STOCKER (R)		234	3-701-446-21	WASHER, 8	
215	4-211-210-01	STOCKER (L)		235	4-211-218-01	GEAR (GEAR A)	
216	4-211-215-01	GEAR (EJECT)		236	4-211-220-01	GEAR (U/D SLIDER)	
217	4-211-232-01	GEAR (MODE DECELERATION)		237	4-211-219-01	GEAR (GEAR B)	
218	4-211-214-01	PULLEY (LD)		M701	X-4950-341-1	MOTOR (CLAMP) ASSY (ELEVATOR UP/DOWN)	
219	4-951-620-41	SCREW (2.6), +BVTP		S707	1-418-045-01	ENCODER, ROTARY	
220	4-211-237-01	BELT (MODE)				(DISC TRY ADDRESS DETECT)	

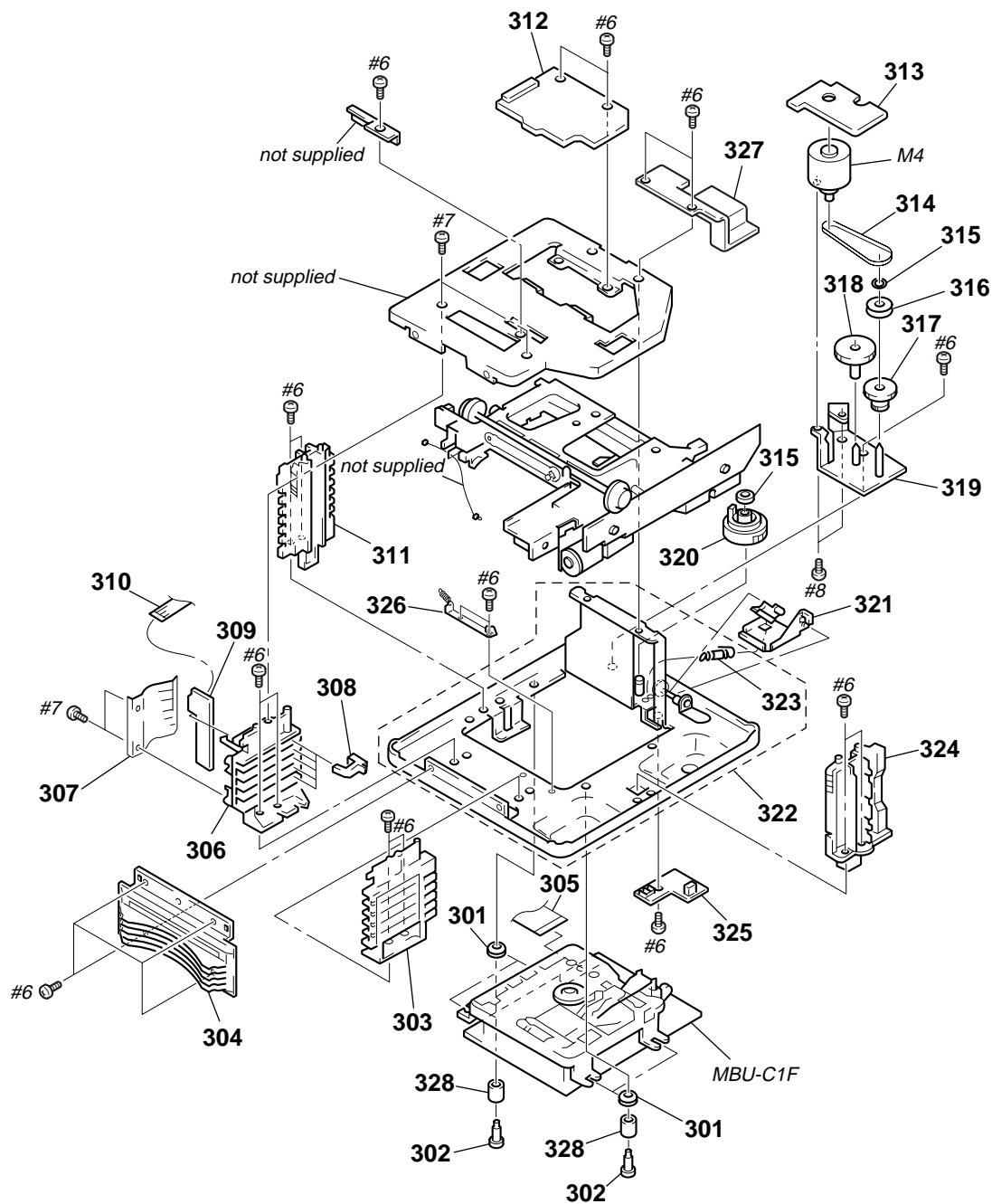
(6) CD BASE UNIT SECTION
(BU-K1BD33)



The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

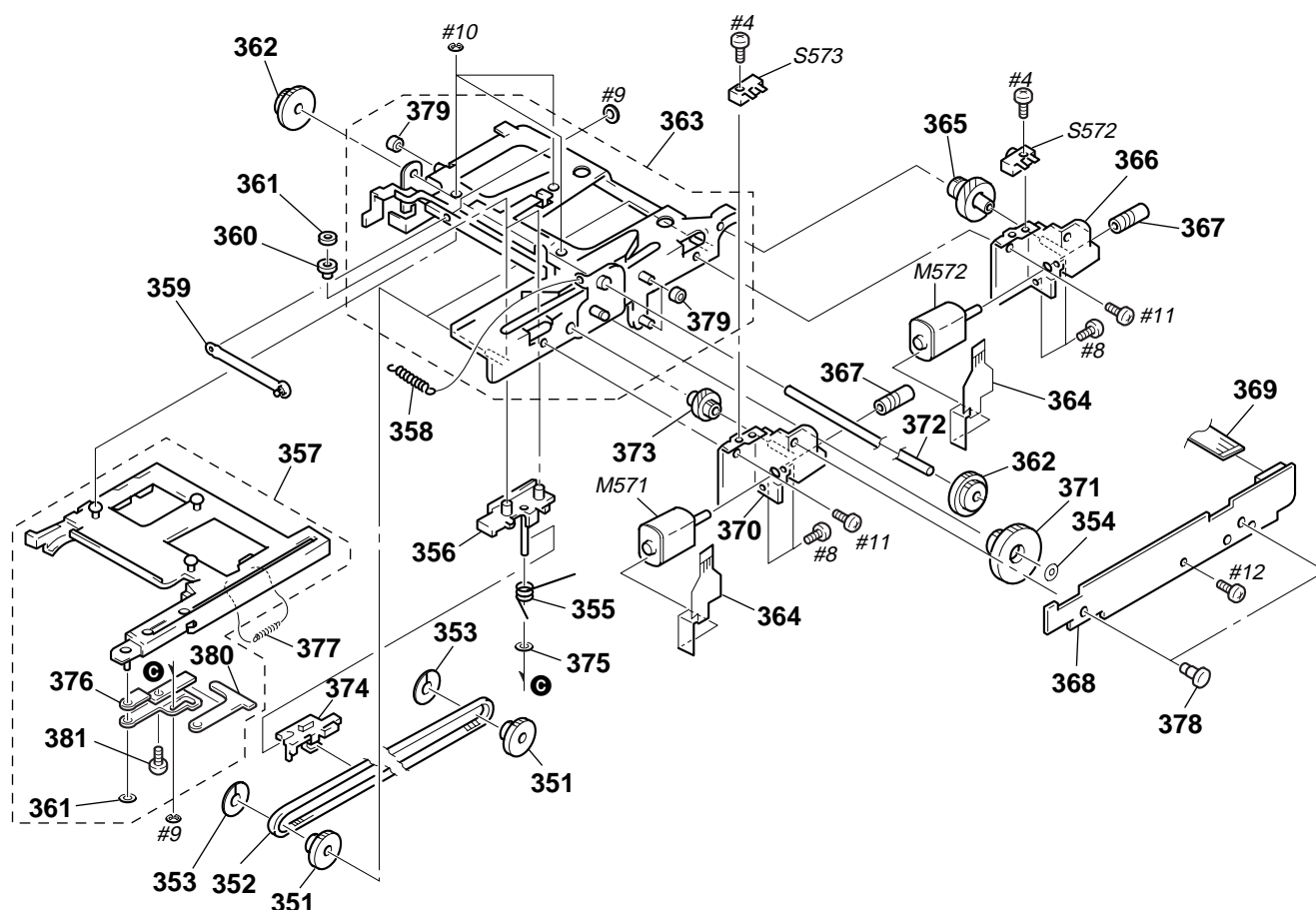
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	4-996-243-11	SCREW (M2), +PSW		256	2-627-003-02	GEAR (B) (RP)	
* 252	A-4724-330-A	BD (CD) BOARD, COMPLETE		257	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
\triangle 253	A-3328-818-A	OPTICAL PICK-UP (KSM-213BFN)		258	4-216-878-01	COLLAR	
254	3-713-786-51	SCREW +P 2X3		259	2-626-907-11	GEAR (A)	
255	2-626-908-01	SHAFT, SLED		M102	X-2625-769-1	SLED MOTOR (WITH GEAR) ASSY	

(7) MD MECHANISM DECK SECTION-1
(MDM-C1F)



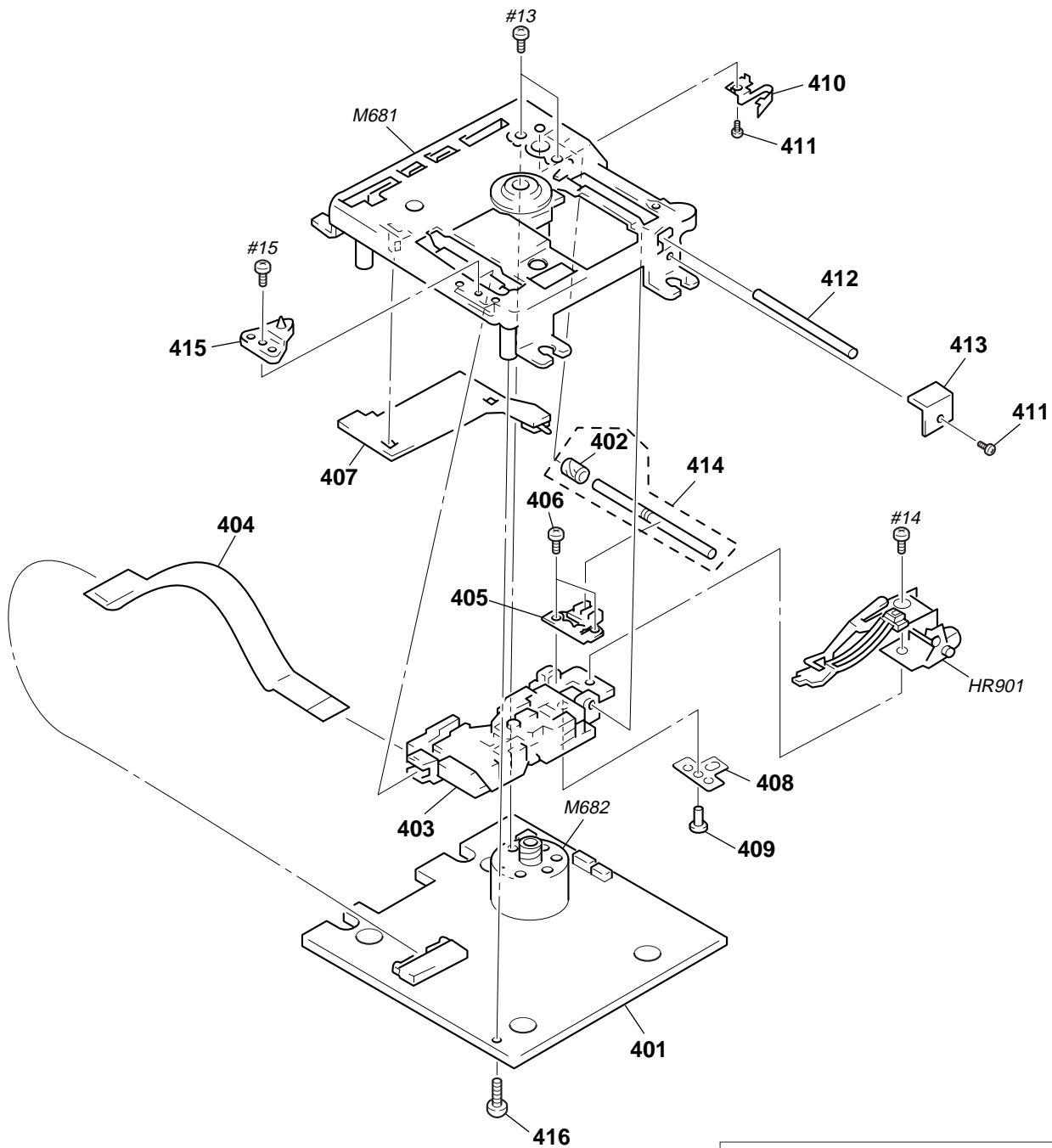
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	4-987-327-01	INSULATOR		315	3-701-438-21	WASHER (E-2.3), NYLON	
302	4-987-240-01	SCREW, STEP		316	3-018-636-01	GEAR (PULLEY) (C)	
303	4-986-932-01	HOLDER (R)		317	3-018-203-01	GEAR (HEAD) (A)	
304	4-212-592-01	ESCUTCHEON ('98 FRONT)		318	3-018-204-01	GEAR (HEAD) (B)	
305	1-790-121-01	WIRE (FLAT TYPE) (21 CORE)		319	X-3374-348-1	CHASSIS (HEAD GEAR) ASSY	
306	4-986-930-01	HOLDER (L)		320	4-987-242-01	GEAR (CAM)	
307	4-986-934-01	SPRING (LOCK), LEAF		* 321	4-987-241-01	LEVER (H)	
308	4-213-115-01	LOCK ('98 NEW)		322	X-4947-927-1	CHASSIS (BASE) ASSY	
* 309	1-671-472-11	DISC SW BOARD		323	4-996-395-02	SPRING (H), TENSION	
310	1-782-910-11	WIRE (FLAT TYPE) (7 CORE)		324	4-994-630-12	RACK (RN)	
311	4-988-375-01	RACK (L)		* 325	1-671-471-11	HEAD SW BOARD	
* 312	1-671-468-11	MECH RELAY BOARD		326	X-4949-848-1	STAY (WIRE) ASSY	
* 313	1-671-470-11	HEAD RELAY BOARD		* 327	4-997-713-01	COVER (FFC)	
314	3-661-080-00	BELT, (A)		328	4-216-886-01	COLLAR (MDM)	
				M4	X-4949-160-1	MOTOR (HEAD) ASSY(OVER WRITE HEAD UP/DOWN)	

(8) MD MECHANISM DECK SECTION-2
(MDM-C1F)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	4-986-951-01	GEAR (4)		* 368	1-671-469-11	ELEVATOR RELAY BOARD	
352	4-987-243-01	BELT, TOOTHED LOCK		369	1-782-909-11	WIRE (FLAT TYPE) (13 CORE)	
353	4-986-947-01	STOPPER		370	X-4947-928-1	BRACKET (1A) ASSY	
354	3-701-438-21	WASHER (E-2.3), NYLON		371	4-986-950-01	GEAR (3)	
355	4-987-236-01	SPRING, TORSION		372	4-987-244-01	SHAFT (1)	
356	X-4947-932-1	SLIDER (2) ASSY		373	4-986-949-11	GEAR (2)	
* 357	X-3374-359-1	HOLDER (1H) ASSY		374	4-987-235-01	CLAMP (B)	
358	4-987-238-01	SPRING (2), TENSION		375	3-326-162-08	WASHER, POLYETHYLENE, SLIT	
359	X-4948-193-1	LEVER (S) ASSY		376	4-214-244-01	LEVER (3H)	
360	4-987-111-01	ROLLER (2)		377	4-996-395-02	SPRING (H), TENSION	
361	3-307-948-11	WASHER, NYLON		378	4-997-937-01	SCREW (EL), STEP	
362	4-986-952-01	GEAR (5)		379	4-987-253-01	ROLLER (1)	
* 363	X-4949-171-1	CHASSIS (ELEVATOR) (NEW) ASSY		380	4-213-866-02	TOP (LEVER 3H)	
364	1-667-955-11	OP RELAY FLEXIBLE BOARD		381	4-900-590-01	SCREW, PRECISION SMALL	
365	4-986-948-01	GEAR (1)		M571	1-698-874-11	MOTOR, DC (ELEVATOR UP/DOWN)	
366	X-4949-225-3	BRACKET (1BN) ASSY		M572	1-698-874-11	MOTOR, DC (LOADING)	
367	4-986-953-01	WORM		S572	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING IN)	
				S573	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING OUT)	

(9) MD BASE UNIT SECTION
(MBU-C1F)



The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 401	A-4724-315-A	BD (MD) BOARD, COMPLETE		411	3-342-375-11	SCREW (M1.7X1.4), SPECIAL	
402	4-979-911-21	GEAR (B)		* 412	4-988-702-01	SHAFT (MAIN)	
Δ 403	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1RP		* 413	4-988-484-01	STOPPER	
404	1-664-039-11	OP TRANSLATION FLEXIBLE BOARD		414	A-3304-200-A	SCREW ASSY, LEAD	
405	4-963-914-02	RACK (INSERTER)		* 415	4-983-511-02	PIN (OUTSERT)	
406	3-366-890-11	SCREW (M1.4)		416	4-908-618-21	SCREW (+BTP) (2X6)	
* 407	1-671-467-11	SW BOARD		HR901	1-500-489-14	HEAD, OVER WRITE	
408	4-987-061-01	SPACER (RACK)		M681	A-4672-241-A	MOTOR ASSY, SPINDLE	
409	4-955-841-11	SCREW		M682	A-4672-240-A	MOTOR ASSY, SLED	
410	4-979-906-11	SPRING (LEAD SCREW)					

SECTION 8 ELECTRICAL PARTS LIST

BD (CD)

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
• CAPACITORS
uF: μ F
• COILS
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4724-330-A	BD (CD) BOARD, COMPLETE *****		C165	1-163-038-00	CERAMIC CHIP 0.1uF	25V
		< CAPACITOR >		C167	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C101	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	C168	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C102	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V	C171	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C103	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	C172	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C104	1-163-031-11	CERAMIC CHIP 0.01uF	50V				
C108	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V	C181	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
				C182	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C109	1-163-011-11	CERAMIC CHIP 0.0015uF	10% 50V			< CONNECTOR >	
C110	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V	CN101	1-778-874-11	CONNECTOR,FFC(LIF(NON-ZIF))19P	
C111	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	CN102	1-777-937-11	CONNECTOR, FFC/FPC 16P	
C112	1-163-038-00	CERAMIC CHIP 0.1uF	25V			< FERRITE BEAD/SHORT >	
C113	1-163-038-00	CERAMIC CHIP 0.1uF	25V	FB101	1-500-445-21	FERRITE 0uH	
C114	1-163-038-00	CERAMIC CHIP 0.1uF	25V	FB102	1-216-295-00	SHORT 0	
C115	1-126-607-11	ELECT CHIP 47uF	20% 4V	FB103	1-500-445-21	FERRITE 0uH	
C116	1-126-607-11	ELECT CHIP 47uF	20% 4V	FB104	1-216-295-00	SHORT 0	
C117	1-126-209-11	ELECT CHIP 100uF	20% 4V			< IC >	
C118	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	IC101	8-752-386-85	IC CXD2587Q	
C119	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	IC102	8-759-549-28	IC BA5974FP-E2	
C121	1-163-038-00	CERAMIC CHIP 0.1uF	25V	IC103	8-752-085-51	IC CXA2568M-T6	
C122	1-126-206-11	ELECT CHIP 100uF	20% 6.3V			< TRANSISTOR >	
C123	1-163-021-11	CERAMIC CHIP 0.01uF	10% 50V	Q101	8-729-010-08	TRANSISTOR MSB710-R	
C124	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V			< RESISTOR >	
C125	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R101	1-216-077-00	METAL CHIP 15K	5% 1/10W
C126	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R102	1-216-097-00	RES,CHIP 100K	5% 1/10W
C127	1-128-065-11	ELECT CHIP 68uF	20% 10V	R103	1-216-077-00	METAL CHIP 15K	5% 1/10W
C128	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R104	1-216-085-00	METAL CHIP 33K	5% 1/10W
C129	1-163-031-11	CERAMIC CHIP 0.01uF	50V	R105	1-216-097-00	RES,CHIP 100K	5% 1/10W
C130	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V	R106	1-216-049-11	RES,CHIP 1K	5% 1/10W
C131	1-124-779-00	ELECT CHIP 10uF	20% 16V	R107	1-216-073-00	METAL CHIP 10K	5% 1/10W
C133	1-164-346-11	CERAMIC CHIP 1uF	16V				
C140	1-164-346-11	CERAMIC CHIP 1uF	16V	R108	1-216-061-00	METAL CHIP 3.3K	5% 1/10W
C141	1-164-346-11	CERAMIC CHIP 1uF	16V	R109	1-216-121-00	RES,CHIP 1M	5% 1/10W
C143	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R110	1-216-025-00	RES,CHIP 100	5% 1/10W
C151	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	R111	1-216-121-00	RES,CHIP 1M	5% 1/10W
C153	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R113	1-216-121-00	RES,CHIP 1M	5% 1/10W
C154	1-110-501-11	CERAMIC CHIP 0.33uF	10% 16V	R114	1-216-073-00	METAL CHIP 10K	5% 1/10W
C156	1-163-235-11	CERAMIC CHIP 22PF	5% 50V	R116	1-216-001-00	METAL CHIP 10	5% 1/10W
C157	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	R117	1-216-049-11	RES,CHIP 1K	5% 1/10W
C159	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V				
C161	1-126-206-11	ELECT CHIP 100uF	20% 6.3V				
C162	1-126-205-11	ELECT CHIP 47uF	20% 6.3V				
C163	1-126-206-11	ELECT CHIP 100uF	20% 6.3V				

BD (CD)

BD (MD)

Ref. No.	Part No.	Description	Remark		
R119	1-216-041-00	METAL CHIP	470	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-00	RES,CHIP	100K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-295-00	SHORT	0		
R136	1-216-295-00	SHORT	0		
R137	1-216-295-00	SHORT	0		
R138	1-216-295-00	SHORT	0		
R143	1-216-103-00	METAL CHIP	180K	5%	1/10W
R144	1-216-103-00	METAL CHIP	180K	5%	1/10W
R147	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-001-00	METAL CHIP	10	5%	1/10W
R158	1-216-111-00	METAL CHIP	390K	5%	1/10W
R159	1-216-101-00	METAL CHIP	150K	5%	1/10W
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
R171	1-216-078-00	RES,CHIP	16K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-077-00	METAL CHIP	15K	5%	1/10W
R181	1-216-078-00	RES,CHIP	16K	5%	1/10W
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W
R183	1-216-077-00	METAL CHIP	15K	5%	1/10W
< NETWORK RESISTOR >					
RN101	1-233-412-11	RES, CHIP NETWORK 1.0K (3216)			
RN102	1-233-576-11	RES, CHIP NETWORK 100			
< SWITCH >					
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
< VIBRATOR >					
X101	1-767-408-21	VIBRATOR, CRYSTAL (16.9344MHz)			

*	A-4724-315-A	BD (MD) BOARD, COMPLETE			

< CAPACITOR >					
C101	1-125-822-11	TANTALUM	10uF	20%	10V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-125-822-11	TANTALUM	10uF	20%	10V
C104	1-125-822-11	TANTALUM	10uF	20%	10V
C105	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C118	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C119	1-125-822-11	TANTALUM	10uF	20%	10V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V

Ref. No.	Part No.	Description	Remark		
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C128	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C140	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C148	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C153	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C156	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C161	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C163	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C164	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C167	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C168	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C169	1-125-822-11	TANTALUM	10uF	20%	10V
C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C183	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C184	1-117-962-11	ELECT CHIP	22uF	20%	6.3V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C187	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C188	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C191	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C216	1-125-822-11	TANTALUM	10uF	20%	10V
C350	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C351	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C352	1-126-204-11	ELECT CHIP	47uF	20%	16V
C353	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C354	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C355	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C357	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C358	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C359	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C360	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C361	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C362	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C363	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C401	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C503	1-125-822-11	TANTALUM 10uF 20% 10V		L401	1-414-813-11	FERRITE 0uH	
C509	1-125-822-11	TANTALUM 10uF 20% 10V		L502	1-414-813-11	FERRITE 0uH	
C510	1-125-822-11	TANTALUM 10uF 20% 10V				< TRANSISTOR >	
C522	1-163-038-00	CERAMIC CHIP 0.1uF 25V					
C527	1-163-038-00	CERAMIC CHIP 0.1uF 25V		Q101	8-729-403-35	TRANSISTOR UN5113	
C528	1-163-038-00	CERAMIC CHIP 0.1uF 25V		Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
C529	1-163-038-00	CERAMIC CHIP 0.1uF 25V		Q103	8-729-402-93	TRANSISTOR UN5214-TX	
C901	1-163-021-11	CERAMIC CHIP 0.01uF 10% 50V		Q104	8-729-402-93	TRANSISTOR UN5214-TX	
C2001	1-163-038-00	CERAMIC CHIP 0.1uF 25V		Q162	8-729-101-07	TRANSISTOR 2SB798-DL	
		< CONNECTOR >					
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P		Q163	8-729-403-35	TRANSISTOR UN5113	
CN102	1-770-072-11	CONNECTOR, FFC (LIF(NON-ZIF)) 23P		Q181	8-729-018-75	FET 2SJ278MY	
CN103	1-784-865-01	CONNECTOR, FFC (LIF(NON-ZIF)) 13P		Q182	8-729-017-65	FET 2SK1764KY	
* CN104	1-785-379-01	HOUSING, CONNECTOR 4P		Q401	8-729-402-42	TRANSISTOR UN5213	
CN105	1-784-833-41	CONNECTOR, FFC (LIF(NON-ZIF)) 21P		Q402	8-729-402-42	TRANSISTOR UN5213	
				Q403	8-729-402-42	TRANSISTOR UN5213	
* CN106	1-695-441-21	PIN, CONNECTOR (PC BOARD) 7P				< RESISTOR >	
CN108	1-750-499-21	PIN, CONNECTOR (PC BOARD) 5P					
* CN109	1-750-494-31	PIN, CONNECTOR (PC BOARD) 6P		R103	1-216-049-11	RES,CHIP 1K 5% 1/10W	
* CN2000	1-750-078-11	HOUSING, CONNECTOR 3P		R104	1-216-073-00	METAL CHIP 10K 5% 1/10W	
		< DIODE >		R105	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
D101	8-719-988-62	DIODE 1SS355		R106	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
D181	8-719-046-86	DIODE F1J6TP		R107	1-216-113-00	METAL CHIP 470K 5% 1/10W	
D183	8-719-046-86	DIODE F1J6TP					
		< IC >		R110	1-216-073-00	METAL CHIP 10K 5% 1/10W	
IC101	8-752-080-95	IC CXA2523AR		R112	1-216-089-00	RES,CHIP 47K 5% 1/10W	
IC103	8-729-903-10	IC TRANSISTOR FMW1		R113	1-216-049-11	RES,CHIP 1K 5% 1/10W	
IC121	8-752-389-44	IC CXD2654R		R115	1-216-049-11	RES,CHIP 1K 5% 1/10W	
IC124	8-759-536-21	IC MSM51V4400D-10TSK-FS		R117	1-216-113-00	METAL CHIP 470K 5% 1/10W	
IC152	8-759-430-25	IC BH6511FS-E2					
IC171	8-759-487-04	IC BR24C02F-E2		R121	1-216-097-00	RES,CHIP 100K 5% 1/10W	
IC172	8-759-040-83	IC BA6287F		R125	1-216-049-11	RES,CHIP 1K 5% 1/10W	
IC181	8-759-481-17	IC MC74ACT08DTR2		R131	1-216-073-00	METAL CHIP 10K 5% 1/10W	
IC191	8-759-460-72	IC BA033FP-E2		R132	1-216-097-00	RES,CHIP 100K 5% 1/10W	
IC201	8-759-553-65	IC UDA1341TS/N2		R133	1-216-117-00	METAL CHIP 680K 5% 1/10W	
IC316	8-759-578-36	IC M30624MG-205B					
IC401	8-759-564-53	IC MC74HCU04ADTR2		R134	1-216-049-11	RES,CHIP 1K 5% 1/10W	
IC2000	8-759-195-81	IC TC7S86FU(TE85R)		R135	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
		< COIL >		R136	1-216-049-11	RES,CHIP 1K 5% 1/10W	
L008	1-500-445-21	FERRITE 0uH		R137	1-216-025-00	RES,CHIP 100 5% 1/10W	
L101	1-414-813-11	FERRITE 0uH		R139	1-216-035-00	METAL CHIP 270 5% 1/10W	
L102	1-414-813-11	FERRITE 0uH					
L103	1-414-813-11	FERRITE 0uH		R140	1-216-029-00	METAL CHIP 150 5% 1/10W	
L105	1-414-813-11	FERRITE 0uH		R142	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L106	1-414-813-11	FERRITE 0uH		R143	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L121	1-414-813-11	FERRITE 0uH		R144	1-216-025-00	RES,CHIP 100 5% 1/10W	
L122	1-414-813-11	FERRITE 0uH		R145	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L151	1-412-622-51	INDUCTOR 10uH					
L152	1-412-622-51	INDUCTOR 10uH		R146	1-216-037-00	METAL CHIP 330 5% 1/10W	
L153	1-412-039-51	INDUCTOR CHIP 100uH		R147	1-216-025-00	RES,CHIP 100 5% 1/10W	
L154	1-412-039-51	INDUCTOR CHIP 100uH		R148	1-216-045-00	METAL CHIP 680 5% 1/10W	
L161	1-414-813-11	FERRITE 0uH		R149	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L162	1-414-813-11	FERRITE 0uH		R151	1-216-073-00	METAL CHIP 10K 5% 1/10W	
L181	1-424-675-11	INDUCTOR 33uH					
L351	1-414-813-11	FERRITE 0uH		R152	1-216-073-00	METAL CHIP 10K 5% 1/10W	
				R153	1-216-043-00	RES,CHIP 560 5% 1/10W	
				R158	1-216-097-00	RES,CHIP 100K 5% 1/10W	
				R159	1-216-097-00	RES,CHIP 100K 5% 1/10W	
				R161	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
				R162	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
				R163	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
				R164	1-216-045-00	METAL CHIP 680 5% 1/10W	
				R165	1-216-097-00	RES,CHIP 100K 5% 1/10W	
				R166	1-220-149-11	REGISTER 2.2 10% 1/2W	

BD (MD)

Ref. No.	Part No.	Description			Remark
R167	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R178	1-216-295-00	SHORT	0		
R179	1-216-085-00	METAL CHIP	33K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-00	RES,CHIP	47K	5%	1/10W
R183	1-216-089-00	RES,CHIP	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-081-00	METAL CHIP	22K	5%	1/10W
R186	1-216-089-00	RES,CHIP	47K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-295-00	SHORT	0		
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R331	1-216-246-00	RES,CHIP	100K	5%	1/8W
R333	1-216-222-00	RES,CHIP	10K	5%	1/8W
R351	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R352	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R353	1-216-295-00	SHORT	0		
R361	1-216-073-00	METAL CHIP	10K	5%	1/10W
R363	1-216-222-00	RES,CHIP	10K	5%	1/8W
R366	1-216-097-00	RES,CHIP	100K	5%	1/10W
R367	1-216-097-00	RES,CHIP	100K	5%	1/10W
R370	1-216-246-00	RES,CHIP	100K	5%	1/8W
R374	1-216-295-00	SHORT	0		
R383	1-216-073-00	METAL CHIP	10K	5%	1/10W
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W
R385	1-216-073-00	METAL CHIP	10K	5%	1/10W
R386	1-216-073-00	METAL CHIP	10K	5%	1/10W
R391	1-216-073-00	METAL CHIP	10K	5%	1/10W
R394	1-216-073-00	METAL CHIP	10K	5%	1/10W
R395	1-216-073-00	METAL CHIP	10K	5%	1/10W
R396	1-216-073-00	METAL CHIP	10K	5%	1/10W
R397	1-216-073-00	METAL CHIP	10K	5%	1/10W
R398	1-216-073-00	METAL CHIP	10K	5%	1/10W
R399	1-216-073-00	METAL CHIP	10K	5%	1/10W
R400	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-089-00	RES,CHIP	47K	5%	1/10W
R402	1-216-113-00	METAL CHIP	470K	5%	1/10W
R403	1-216-073-00	METAL CHIP	10K	5%	1/10W
R432	1-216-097-00	RES,CHIP	100K	5%	1/10W
R433	1-216-097-00	RES,CHIP	100K	5%	1/10W
R434	1-216-097-00	RES,CHIP	100K	5%	1/10W
R503	1-216-025-00	RES,CHIP	100	5%	1/10W
R504	1-216-025-00	RES,CHIP	100	5%	1/10W
R520	1-217-671-11	METAL CHIP	1	5%	1/10W
R521	1-217-671-11	METAL CHIP	1	5%	1/10W
R550	1-216-025-00	RES,CHIP	100	5%	1/10W
R551	1-216-025-00	RES,CHIP	100	5%	1/10W
R617	1-216-025-00	RES,CHIP	100	5%	1/10W
R618	1-216-025-00	RES,CHIP	100	5%	1/10W
R619	1-216-025-00	RES,CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R802	1-216-025-00	RES,CHIP	100	5%	1/10W
R803	1-216-025-00	RES,CHIP	100	5%	1/10W
R804	1-216-025-00	RES,CHIP	100	5%	1/10W
R805	1-216-025-00	RES,CHIP	100	5%	1/10W
R806	1-216-017-00	RES,CHIP	47	5%	1/10W
R808	1-216-017-00	RES,CHIP	47	5%	1/10W
R809	1-216-081-00	METAL CHIP	22K	5%	1/10W
R812	1-216-025-00	RES,CHIP	100	5%	1/10W
R813	1-216-025-00	RES,CHIP	100	5%	1/10W
R814	1-216-085-00	METAL CHIP	33K	5%	1/10W
R816	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R817	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R821	1-216-025-00	RES,CHIP	100	5%	1/10W
R822	1-216-025-00	RES,CHIP	100	5%	1/10W
R823	1-216-025-00	RES,CHIP	100	5%	1/10W
R824	1-216-025-00	RES,CHIP	100	5%	1/10W
R825	1-216-025-00	RES,CHIP	100	5%	1/10W
R826	1-216-025-00	RES,CHIP	100	5%	1/10W
R827	1-216-025-00	RES,CHIP	100	5%	1/10W
R828	1-216-025-00	RES,CHIP	100	5%	1/10W
R830	1-216-025-00	RES,CHIP	100	5%	1/10W
R831	1-216-025-00	RES,CHIP	100	5%	1/10W
R832	1-216-025-00	RES,CHIP	100	5%	1/10W
R833	1-216-025-00	RES,CHIP	100	5%	1/10W
R851	1-216-025-00	RES,CHIP	100	5%	1/10W
R852	1-216-025-00	RES,CHIP	100	5%	1/10W
R853	1-216-025-00	RES,CHIP	100	5%	1/10W
R854	1-216-025-00	RES,CHIP	100	5%	1/10W
R855	1-216-025-00	RES,CHIP	100	5%	1/10W
R856	1-216-025-00	RES,CHIP	100	5%	1/10W
R857	1-216-025-00	RES,CHIP	100	5%	1/10W
R858	1-216-025-00	RES,CHIP	100	5%	1/10W
R859	1-216-025-00	RES,CHIP	100	5%	1/10W
R860	1-216-025-00	RES,CHIP	100	5%	1/10W
R861	1-216-025-00	RES,CHIP	100	5%	1/10W
R862	1-216-025-00	RES,CHIP	100	5%	1/10W
R863	1-216-025-00	RES,CHIP	100	5%	1/10W
R864	1-216-025-00	RES,CHIP	100	5%	1/10W
R865	1-216-025-00	RES,CHIP	100	5%	1/10W
R867	1-216-025-00	RES,CHIP	100	5%	1/10W
R870	1-216-073-00	METAL CHIP	10K	5%	1/10W
R871	1-216-073-00	METAL CHIP	10K	5%	1/10W
R872	1-216-073-00	METAL CHIP	10K	5%	1/10W
R873	1-216-073-00	METAL CHIP	10K	5%	1/10W
R874	1-216-073-00	METAL CHIP	10K	5%	1/10W
R875	1-216-073-00	METAL CHIP	10K	5%	1/10W
R876	1-216-073-00	METAL CHIP	10K	5%	1/10W
R877	1-216-073-00	METAL CHIP	10K	5%	1/10W
R878	1-216-073-00	METAL CHIP	10K	5%	1/10W
R879	1-216-073-00	METAL CHIP	10K	5%	1/10W
R880	1-216-073-00	METAL CHIP	10K	5%	1/10W
R881	1-216-073-00	METAL CHIP	10K	5%	1/10W
R882	1-216-073-00	METAL CHIP	10K	5%	1/10W
R886	1-216-073-00	METAL CHIP	10K	5%	1/10W
R887	1-216-073-00	METAL CHIP	10K	5%	1/10W
R905	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1001	1-216-001-00	METAL CHIP	10	5%	1/10W

BD (MD)

CD DISPLAY

CD JOG

Ref. No.	Part No.	Description	Remark		
R1002	1-216-001-00	METAL CHIP	10	5%	1/10W
R1003	1-216-001-00	METAL CHIP	10	5%	1/10W
R2000	1-216-073-00	METAL CHIP	10K	5%	1/10W
R2001	1-216-073-00	METAL CHIP	10K	5%	1/10W
< VIBRATOR >					
X101	1-579-870-21	VIBRATOR, CRYSTAL (22.5792MHz)			
X302	1-781-155-21	VIBRATOR, CERAMIC (10MHz)			

*	A-4724-390-A	CD DISPLAY BOARD, COMPLETE			

*	4-213-361-01	HOLDER (FL)			
*	4-955-901-01	CUSHION (FL)			
< CAPACITOR >					
C601	1-124-248-00	ELECT	22uF	20%	35V
C602	1-124-584-00	ELECT	100uF	20%	10V
C603	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-164-159-11	CERAMIC	0.1uF		50V
C605	1-162-306-11	CERAMIC	0.01uF	20%	16V
C606	1-162-282-31	CERAMIC	100PF	10%	50V
C607	1-164-159-11	CERAMIC	0.1uF		50V
C608	1-164-159-11	CERAMIC	0.1uF		50V
C609	1-162-282-31	CERAMIC	100PF	10%	50V
C610	1-162-282-31	CERAMIC	100PF	10%	50V
C611	1-162-282-31	CERAMIC	100PF	10%	50V
C617	1-136-177-00	FILM	1uF	5%	50V
C618	1-136-177-00	FILM	1uF	5%	50V
C621	1-162-288-31	CERAMIC	330PF	10%	50V
C622	1-162-282-31	CERAMIC	100PF	10%	50V
C623	1-162-282-31	CERAMIC	100PF	10%	50V
C624	1-162-282-31	CERAMIC	100PF	10%	50V
C625	1-162-282-31	CERAMIC	100PF	10%	50V
C626	1-162-282-31	CERAMIC	100PF	10%	50V
C627	1-162-282-31	CERAMIC	100PF	10%	50V
C628	1-162-282-31	CERAMIC	100PF	10%	50V
C629	1-162-282-31	CERAMIC	100PF	10%	50V
C630	1-162-282-31	CERAMIC	100PF	10%	50V
C631	1-162-282-31	CERAMIC	100PF	10%	50V
C632	1-162-282-31	CERAMIC	100PF	10%	50V
C633	1-162-282-31	CERAMIC	100PF	10%	50V
C634	1-162-282-31	CERAMIC	100PF	10%	50V
C635	1-162-282-31	CERAMIC	100PF	10%	50V
< CONNECTOR >					
* CN602	1-770-642-11	CONNECTOR, FFC/FPC 11P			
< FLUORESCENT INDICATOR >					
FL601	1-517-820-11	INDICATOR TUBE, FLUORESCENT			
< IC >					
IC601	8-759-297-23	IC M66004M8FP			
< COIL >					
L601	1-410-521-11	INDUCTOR	100uH		
L602	1-410-521-11	INDUCTOR	100uH		

Ref. No.	Part No.	Description	Remark			
< TRANSISTOR >						
Q601	8-729-620-05	TRANSISTOR	2SC2603-EF			
< RESISTOR >						
R631	1-247-807-31	CARBON	100	5%	1/4W	
R632	1-247-807-31	CARBON	100	5%	1/4W	
R633	1-247-807-31	CARBON	100	5%	1/4W	
R634	1-247-807-31	CARBON	100	5%	1/4W	
R635	1-249-434-11	CARBON	27K	5%	1/4W	
R637	1-249-429-11	CARBON	10K	5%	1/4W	
R638	1-249-417-11	CARBON	1K	5%	1/4W	
< SWITCH >						
S636	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)				

*	A-4724-393-A	CD JOG BOARD, COMPLETE				

< CAPACITOR >						
C661	1-124-584-00	ELECT	100uF	20%	10V	
C662	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C663	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C664	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C665	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C666	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C675	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	
C676	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	
< CONNECTOR >						
CN661	1-764-296-11	HOUSING,CONNECTOR (PC BOARD) 12P				
< LED >						
D661	8-719-056-13	LED	SML79423C-TP15 (CD1)			
D662	8-719-056-13	LED	SML79423C-TP15 (CD2)			
D663	8-719-056-13	LED	SML79423C-TP15 (CD3)			
D664	8-719-056-13	LED	SML79423C-TP15 (CD4)			
D665	8-719-056-13	LED	SML79423C-TP15 (CD5)			
< IC >						
IC661	8-759-448-24	IC	NJU3718G (TE2)			
< RESISTOR >						
R661	1-216-033-00	METAL CHIP	220	5%	1/10W	
R662	1-216-033-00	METAL CHIP	220	5%	1/10W	
R663	1-216-033-00	METAL CHIP	220	5%	1/10W	
R664	1-216-033-00	METAL CHIP	220	5%	1/10W	
R665	1-216-033-00	METAL CHIP	220	5%	1/10W	
R666	1-216-029-00	METAL CHIP	150	5%	1/10W	
R667	1-216-029-00	METAL CHIP	150	5%	1/10W	
R668	1-216-029-00	METAL CHIP	150	5%	1/10W	
R669	1-216-029-00	METAL CHIP	150	5%	1/10W	
R670	1-216-029-00	METAL CHIP	150	5%	1/10W	
R671	1-216-041-00	METAL CHIP	470	5%	1/10W	
R672	1-216-045-00	METAL CHIP	680	5%	1/10W	
R673	1-216-049-11	RES,CHIP	1K	5%	1/10W	
R674	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	

CD JOG

CD SW

CLAMP MOTOR

CONNECTOR

CONNECTOR (CD)

DISC SW

Ref. No.	Part No.	Description			Remark
R675	1-216-041-00	METAL CHIP	470	5%	1/10W
R676	1-216-045-00	METAL CHIP	680	5%	1/10W
R677	1-216-049-11	RES,CHIP	1K	5%	1/10W
R678	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R679	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R681	1-216-025-00	RES,CHIP	100	5%	1/10W
R682	1-216-025-00	RES,CHIP	100	5%	1/10W
R683	1-216-025-00	RES,CHIP	100	5%	1/10W
R684	1-216-025-00	RES,CHIP	100	5%	1/10W
R685	1-216-097-00	RES,CHIP	100K	5%	1/10W
< SWITCH/ROTARY ENCORDER >					
S661	1-762-875-21	SWITCH, KEYBOARD (CD1)			
S662	1-762-875-21	SWITCH, KEYBOARD (CD2)			
S663	1-762-875-21	SWITCH, KEYBOARD (CD3)			
S664	1-762-875-21	SWITCH, KEYBOARD (CD4)			
S665	1-762-875-21	SWITCH, KEYBOARD (CD5)			
S671	1-762-875-21	SWITCH, KEYBOARD (△(CD1))			
S672	1-762-875-21	SWITCH, KEYBOARD (△(CD2))			
S673	1-762-875-21	SWITCH, KEYBOARD (△(CD3))			
S674	1-762-875-21	SWITCH, KEYBOARD (△(CD4))			
S675	1-762-875-21	SWITCH, KEYBOARD (△(CD5))			
S676	1-762-875-21	SWITCH, KEYBOARD (DISC SKIP)			
S681	1-473-480-11	ENCODER,ROTARY (⏮◀◄▶▶⏭)			

*	A-4724-396-A	CD SW BOARD, COMPLETE			

< CONNECTOR >					
CN601	1-750-498-11	PIN, CONNECTOR (PC BOARD) 4P			
< RESISTOR >					
R602	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R605	1-216-045-00	METAL CHIP	680	5%	1/10W
R606	1-216-049-11	RES,CHIP	1K	5%	1/10W
R607	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R610	1-216-075-00	METAL CHIP	12K	5%	1/10W
R616	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R617	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R618	1-216-075-00	METAL CHIP	12K	5%	1/10W
R619	1-216-041-00	METAL CHIP	470	5%	1/10W
R621	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R623	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
< SWITCH >					
S602	1-771-544-11	SWITCH, TACTILE (1/ALL)			
S603	1-771-544-11	SWITCH, TACTILE (PLAY MODE)			
S604	1-771-544-11	SWITCH, TACTILE (REPEAT)			
S606	1-771-544-11	SWITCH, TACTILE (▶⏮)			
S607	1-771-544-11	SWITCH, TACTILE (□)			
S608	1-771-544-11	SWITCH, TACTILE (◀◄)			
S609	1-771-544-11	SWITCH, TACTILE (▶▶)			
S610	1-771-544-11	SWITCH, TACTILE (NAME EDIT)			
S611	1-771-544-11	SWITCH, TACTILE (MENU/NO)			
S612	1-771-544-11	SWITCH, TACTILE (ENTER/YES)			

Ref. No.	Part No.	Description	Remark			
S613	1-771-544-11	SWITCH, TACTILE (CLEAR)	*****			

*	1-671-507-11	CLAMP MOTOR BOARD	*****			

< CAPACITOR >						
C701	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C702	1-126-964-11	ELECT	10uF	20%	50V	
C711	1-162-306-11	CERAMIC	0.01uF	20%	16V	
< CONNECTOR >						
CN712	1-506-469-11	PIN, CONNECTOR 4P				
< DIODE >						
D701	8-719-983-66	DIODE MTZJ-T-72-3.6B				
< IC >						
IC701	8-759-633-65	IC M54641L				
< RESISTOR >						
R701	1-249-411-11	CARBON	330	5%	1/4W	
R702	1-249-401-11	CARBON	47	5%	1/4W	

*	1-671-818-11	CONNECTOR BOARD	*****			

< CONNECTOR >						
CN691	1-784-743-11	CONNECTOR, FFC 21P				
CN692	1-764-311-11	PIN, CONNECTOR (PC BOARD) 12P				
CN693	1-774-758-11	CONNECTOR, FFC/FPC 11P				
* CN694	1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P				
CN695	1-506-486-11	PIN, CONNECTOR 7P				

*	1-671-506-11	CONNECTOR (CD) BOARD	*****			

< CONNECTOR >						
CN701	1-568-860-11	SOCKET, CONNECTOR 17P				
< TRANSISTOR >						
Q701	8-729-029-66	TRANSISTOR DTC114ESA				
< RESISTOR >						
R707	1-249-424-11	CARBON	3.9K	5%	1/4W	
R708	1-249-417-11	CARBON	1K	5%	1/4W	
R709	1-249-429-11	CARBON	10K	5%	1/4W	

*	1-671-472-11	DISC SW BOARD	*****			

< CONNECTOR >						
* CNP14	1-568-826-11	SOCKET, CONNECTOR 7P				

DISC SW

ELEVATOR RELAY

HEAD RELAY

HEAD SW

INIT/COUNT SW

IN SW

LOAD MOTOR

Ref. No.	Part No.	Description	Remark			
< SWITCH >						
S1	1-771-225-12	SWITCH, LEVER (DISC 1)				
S2	1-771-225-12	SWITCH, LEVER (DISC 2)				
S3	1-771-225-12	SWITCH, LEVER (DISC 3)				
S4	1-771-225-12	SWITCH, LEVER (DISC 4)				
S5	1-771-225-12	SWITCH, LEVER (DISC 5)				

*	1-671-469-11	ELEVATOR RELAY BOARD	*****			
*	1-535-303-00	WIRE, JUMPER				
< CAPACITOR >						
C1	1-126-382-11	ELECT	100uF	20%	6.3V	
C570	1-163-063-00	CERAMIC CHIP	0.022uF		50V	
C571	1-115-871-11	ELECT	1uF	20%	50V	
C572	1-163-063-00	CERAMIC CHIP	0.022uF		50V	
< CONNECTOR >						
* CN570	1-568-832-11	SOCKET, CONNECTOR 13P				
* CN571	1-568-848-11	SOCKET, CONNECTOR 5P				
* CN572	1-568-848-11	SOCKET, CONNECTOR 5P				
< IC >						
IC570	8-759-982-73	IC BA10393F				
< PHOTO INTERRUPTER >						
PH570	8-749-012-33	PHOTO INTERRUPTER GP1S94				
PH571	8-749-012-33	PHOTO INTERRUPTER GP1S94				
< TRANSISTOR >						
Q570	8-729-030-02	TRANSISTOR DTC144ESA				
< RESISTOR >						
R570	1-216-224-00	RES,CHIP	12K	5%	1/8W	
R571	1-216-218-00	RES,CHIP	6.8K	5%	1/8W	
R572	1-216-238-00	RES,CHIP	47K	5%	1/8W	
R573	1-216-230-00	RES,CHIP	22K	5%	1/8W	
R574	1-216-230-00	RES,CHIP	22K	5%	1/8W	
R575	1-216-230-00	RES,CHIP	22K	5%	1/8W	
R576	1-216-230-00	RES,CHIP	22K	5%	1/8W	
R577	1-216-188-00	RES,CHIP	390	5%	1/8W	
R578	1-216-188-00	RES,CHIP	390	5%	1/8W	
R579	1-216-296-00	SHORT	0			
R580	1-216-296-00	SHORT	0			
R581	1-216-296-00	SHORT	0			
R582	1-216-296-00	SHORT	0			
R583	1-216-296-00	SHORT	0			
< SWITCH >						
S570	1-771-225-12	SWITCH, LEVER (HOME)				
S571	1-771-225-12	SWITCH, LEVER (RESET)				

Ref. No.	Part No.	Description	Remark			
*	1-671-470-11	HEAD RELAY BOARD	*****			
< CAPACITOR >						
C4	1-101-005-00	CERAMIC	22000PF		50V	
C5	1-101-005-00	CERAMIC	22000PF		50V	
< CONNECTOR >						
* CNP19	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	*****			
*	1-671-471-11	HEAD SW BOARD	*****			
< CONNECTOR >						
* CNP18	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P				
< SWITCH >						
S6	1-771-495-11	SWITCH, PUSH (DETECTION) (HEAD UP)				
S7	1-771-495-11	SWITCH, PUSH (DETECTION) (HEAD DOWN)	*****			
*	1-671-502-11	INIT/COUNT SW BOARD	*****			
< SWITCH >						
S705	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (INIT)				
S706	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY) (COUNT)	*****			
*	1-671-505-11	IN SW BOARD	*****			
< CONNECTOR >						
* CN710	1-568-941-11	PIN, CONNECTOR 3P				
< SWITCH >						
S703	1-771-218-11	SWITCH, MICRO (MID IN)				
S704	1-771-218-11	SWITCH, MICRO (IN)	*****			
*	1-671-508-11	LOAD MOTOR BOARD	*****			
< CAPACITOR >						
C703	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C704	1-126-964-11	ELECT	10uF	20%	50V	
C712	1-162-306-11	CERAMIC	0.01uF	20%	16V	
< CONNECTOR >						
CN713	1-506-469-11	PIN, CONNECTOR 4P				
< DIODE >						
D702	8-719-109-85	DIODE RD5.1ES-B2				
< IC >						
IC702	8-759-633-65	IC M54641L				

LOAD MOTOR

MAIN

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R703	1-249-411-11	CARBON	330	5%	1/4W
R704	1-249-401-11	CARBON	47	5%	1/4W

*	A-4724-389-A	MAIN BOARD, COMPLETE			

	7-685-871-01	SCREW +BVTT	3X6	(S)	
< CAPACITOR >					
C201	1-164-159-11	CERAMIC	0.1uF		50V
C202	1-164-159-11	CERAMIC	0.1uF		50V
C203	1-136-165-00	FILM	0.1uF	5%	50V
C204	1-136-165-00	FILM	0.1uF	5%	50V
C205	1-164-159-11	CERAMIC	0.1uF		50V
C207	1-115-364-11	ELECT	22000uF	20%	16V
C208	1-164-159-11	CERAMIC	0.1uF		50V
C210	1-104-665-11	ELECT	100uF	20%	10V
C211	1-104-665-11	ELECT	100uF	20%	10V
C212	1-126-967-11	ELECT	47uF	20%	50V
C213	1-126-964-11	ELECT	10uF	20%	50V
C215	1-126-926-11	ELECT	1000uF	20%	10V
C216	1-126-934-11	ELECT	220uF	20%	10V
C217	1-126-934-11	ELECT	220uF	20%	10V
C220	1-126-934-11	ELECT	220uF	20%	10V
C221	1-126-970-11	ELECT	330uF	20%	50V
C222	1-126-970-11	ELECT	330uF	20%	50V
C223	1-126-967-11	ELECT	47uF	20%	50V
C224	1-126-967-11	ELECT	47uF	20%	50V
C225	1-126-025-11	ELECT	330uF	20%	25V
C226	1-126-025-11	ELECT	330uF	20%	25V
C227	1-104-664-11	ELECT	47uF	20%	25V
C228	1-104-664-11	ELECT	47uF	20%	25V
C232	1-126-964-11	ELECT	10uF	20%	50V
C233	1-104-665-11	ELECT	100uF	20%	10V
C234	1-164-159-11	CERAMIC	0.1uF		50V
C235	1-126-916-11	ELECT	1000uF	20%	6.3V
C236	1-164-159-11	CERAMIC	0.1uF		50V
C237	1-136-177-00	FILM	1uF	5%	50V
C238	1-164-159-11	CERAMIC	0.1uF		50V
C239	1-164-159-11	CERAMIC	0.1uF		50V
C240	1-164-159-11	CERAMIC	0.1uF		50V
C490	1-164-159-11	CERAMIC	0.1uF		50V
C492	1-104-665-11	ELECT	100uF	20%	10V
C493	1-164-159-11	CERAMIC	0.1uF		50V
C516	1-126-964-11	ELECT	10uF	20%	50V
C519	1-162-294-31	CERAMIC	0.001uF	10%	50V
C901	1-126-964-11	ELECT	10uF	20%	50V
C902	1-164-159-11	CERAMIC	0.1uF		50V
C903	1-126-059-11	ELECT	10uF	20%	63V
C904	1-106-359-00	MYLAR	4700PF	5%	200V
C905	1-106-347-00	MYLAR	1500PF	5%	200V
C906	1-126-059-11	ELECT	10uF	20%	63V
C911	1-126-964-11	ELECT	10uF	20%	50V
C912	1-162-290-31	CERAMIC	470PF	10%	50V
C934	1-162-294-31	CERAMIC	0.001uF	10%	50V
C936	1-104-664-11	ELECT	47uF	20%	25V

Ref. No.	Part No.	Description			Remark
C951	1-126-964-11	ELECT	10uF	20%	50V
C952	1-164-159-11	CERAMIC	0.1uF		50V
C953	1-126-059-11	ELECT	10uF	20%	63V
C954	1-106-359-00	MYLAR	4700PF	5%	200V
C955	1-106-347-00	MYLAR	1500PF	5%	200V
C956	1-126-059-11	ELECT	10uF	20%	63V
C961	1-126-964-11	ELECT	10uF	20%	50V
C962	1-162-290-31	CERAMIC	470PF	10%	50V
C984	1-162-294-31	CERAMIC	0.001uF	10%	50V
C986	1-104-664-11	ELECT	47uF	20%	25V
< CONNECTOR >					
CN201	1-566-859-11	SOCKET, CONNECTOR 15P			(SYSTEM CONTROL)
CN202	1-568-683-11	PIN, CONNECTOR (PC BAORD) 2P			
* CN402	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
CN456	1-766-956-11	CONNECTOR, BOARD TO BOARD 15P			
< DIODE >					
D001	8-719-200-82	DIODE	11ES2		
D002	8-719-200-82	DIODE	11ES2		
D003	8-719-200-82	DIODE	11ES2		
D004	8-719-200-82	DIODE	11ES2		
D201	8-719-200-82	DIODE	11ES2		
D202	8-719-200-82	DIODE	11ES2		
D203	8-719-200-82	DIODE	11ES2		
D204	8-719-200-82	DIODE	11ES2		
D205	8-719-200-82	DIODE	11ES2		
D206	8-719-200-82	DIODE	11ES2		
D207	8-719-200-82	DIODE	11ES2		
D208	8-719-200-82	DIODE	11ES2		
D211	8-719-911-19	DIODE	1SS119		
D212	8-719-911-19	DIODE	1SS119		
D213	8-719-985-88	DIODE	HZS6B2LTA		
D214	8-719-200-82	DIODE	11ES2		
D215	8-719-200-82	DIODE	11ES2		
D216	8-719-160-26	DIODE	RD5.6F-B2		
D217	8-719-934-22	DIODE	HZS30-2L		
D218	8-719-200-82	DIODE	11ES2		
D219	8-719-200-82	DIODE	11ES2		
D220	8-719-200-82	DIODE	11ES2		
D221	8-719-200-82	DIODE	11ES2		
D224	8-719-911-19	DIODE	1SS119		
D225	8-719-911-19	DIODE	1SS119		
D226	8-719-985-99	DIODE	HZS7B3LTA		
D227	8-719-200-82	DIODE	11ES2		
D308	8-719-911-19	DIODE	1SS119		
D901	8-719-911-19	DIODE	1SS119		
D902	8-719-911-19	DIODE	1SS119		
D913	8-719-210-21	DIODE	11EQS04		
D951	8-719-911-19	DIODE	1SS119		
D952	8-719-911-19	DIODE	1SS119		
< GROUND TERMINAL >					
EB201	1-537-771-21	TERMINAL BOARD, GROUND			
EB202	1-537-771-21	TERMINAL BOARD, GROUND			

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
< FERRITE BEAD >							R215	1-260-096-11	CARBON	560	5%	1/2W	
FB201	1-410-397-21	FERRITE BEAD INDUCTOR					R216	1-249-422-11	CARBON	2.7K	5%	1/4W	
							R217	1-249-429-11	CARBON	10K	5%	1/4W	
FB204	1-410-397-21	FERRITE BEAD INDUCTOR					R218	1-249-430-11	CARBON	12K	5%	1/4W	
FB205	1-410-397-21	FERRITE BEAD INDUCTOR					R219	1-249-441-11	CARBON	100K	5%	1/4W	
FB206	1-410-397-21	FERRITE BEAD INDUCTOR					R220	1-249-411-11	CARBON	330	5%	1/4W	
FB207	1-410-397-21	FERRITE BEAD INDUCTOR					R221	1-249-411-11	CARBON	330	5%	1/4W	
FB400	1-410-396-41	INDUCTOR	0.45uH				R222	1-249-411-11	CARBON	330	5%	1/4W	
< IC >							R223	1-249-411-11	CARBON	330	5%	1/4W	
IC201	8-759-158-62	IC	TA78057S				R224	1-249-385-11	CARBON	2.2	5%	1/6W	
							R225	1-249-385-11	CARBON	2.2	5%	1/6W	
							R226	1-249-385-11	CARBON	2.2	5%	1/6W	
							R227	1-249-385-11	CARBON	2.2	5%	1/6W	
IC202	8-759-701-75	IC	NJM7805FA				R228	1-260-091-11	CARBON	220	5%	1/2W	
IC203	8-759-701-75	IC	NJM7805FA				R229	1-260-091-11	CARBON	220	5%	1/2W	
IC204	8-759-566-46	IC	P82B715PN				R230	1-249-397-11	CARBON	22	5%	1/4W	
IC205	8-759-158-62	IC	TA78057S				R231	1-249-417-11	CARBON	1K	5%	1/4W	
IC404	8-749-921-11	IC	GP1F32R (OPTICAL IN, DIGITAL IN)				R232	1-249-417-11	CARBON	1K	5%	1/4W	
IC405	8-759-916-12	IC	SN74HC00AN										
IC901	8-759-711-35	IC	NJM4580D										
< JACK >							R233	1-249-428-11	CARBON	8.2K	5%	1/4W	
J901	1-766-394-11	JACK, PIN 6P	(CD ANALOG OUT, MD ANALOG IN, MD ANALOG OUT)				R234	1-249-393-11	CARBON	10	5%	1/4W	
							R235	1-249-441-11	CARBON	100K	5%	1/4W	
							R306	1-249-429-11	CARBON	10K	5%	1/4W	
							R460	1-249-429-11	CARBON	10K	5%	1/4W	
< COIL >							R461	1-249-425-11	CARBON	4.7K	5%	1/4W	
L402	1-410-509-11	INDUCTOR	10uH				R462	1-249-425-11	CARBON	4.7K	5%	1/4W	
							R490	1-249-413-11	CARBON	470	5%	1/4W	
< TRANSISTOR >							R491	1-249-413-11	CARBON	470	5%	1/4W	
Q201	8-729-620-05	TRANSISTOR	2SC2603-EF				R493	1-249-429-11	CARBON	10K	5%	1/4W	
Q202	8-729-620-05	TRANSISTOR	2SC2603-EF				R494	1-249-441-11	CARBON	100K	5%	1/4W	
Q203	8-729-209-15	TRANSISTOR	2SD2012				R495	1-249-441-11	CARBON	100K	5%	1/4W	
Q204	8-729-620-05	TRANSISTOR	2SC2603-EF				R553	1-247-807-31	CARBON	100	5%	1/4W	
Q205	8-729-140-97	TRANSISTOR	2SB734-34				R554	1-249-429-11	CARBON	10K	5%	1/4W	
Q206	8-729-620-05	TRANSISTOR	2SC2603-EF				R555	1-247-807-31	CARBON	100	5%	1/4W	
Q207	8-729-119-76	TRANSISTOR	2SA1175-HFE				R556	1-249-429-11	CARBON	10K	5%	1/4W	
Q208	8-729-620-05	TRANSISTOR	2SC2603-EF				R557	1-247-807-31	CARBON	100	5%	1/4W	
Q209	8-729-119-76	TRANSISTOR	2SA1175-HFE				R558	1-249-429-11	CARBON	10K	5%	1/4W	
Q210	8-729-140-96	TRANSISTOR	2SD774-34				R901	1-249-421-11	CARBON	2.2K	5%	1/4W	
Q211	8-729-620-05	TRANSISTOR	2SC2603-EF				R902	1-249-441-11	CARBON	100K	5%	1/4W	
Q405	8-729-900-80	TRANSISTOR	DTC114ES				R905	1-249-421-11	CARBON	2.2K	5%	1/4W	
Q406	8-729-422-57	TRANSISTOR	UN4111				R906	1-249-421-11	CARBON	2.2K	5%	1/4W	
Q506	8-729-012-83	TRANSISTOR	2SK679A				R907	1-249-441-11	CARBON	100K	5%	1/4W	
Q507	8-729-012-83	TRANSISTOR	2SK679A				R915	1-249-441-11	CARBON	100K	5%	1/4W	
Q508	8-729-012-83	TRANSISTOR	2SK679A				R932	1-249-413-11	CARBON	470	5%	1/4W	
< RESISTOR >							R935	1-249-441-11	CARBON	100K	5%	1/4W	
R201	1-247-807-31	CARBON	100	5%	1/4W								
						R951	1-249-421-11	CARBON	2.2K	5%	1/4W		
						R952	1-249-441-11	CARBON	100K	5%	1/4W		
						R955	1-249-421-11	CARBON	2.2K	5%	1/4W		
						R956	1-249-421-11	CARBON	2.2K	5%	1/4W		
R202	1-249-393-11	CARBON	10	5%	1/4W								
R203	1-249-393-11	CARBON	10	5%	1/4W								
R204	1-247-807-31	CARBON	100	5%	1/4W	R957	1-249-441-11	CARBON	100K	5%	1/4W		
R205	1-249-417-11	CARBON	1K	5%	1/4W	R965	1-249-441-11	CARBON	100K	5%	1/4W		
R206	1-249-425-11	CARBON	4.7K	5%	1/4W	R982	1-249-413-11	CARBON	470	5%	1/4W		
						R985	1-249-441-11	CARBON	100K	5%	1/4W		
R207	1-249-417-11	CARBON	1K	5%	1/4W	*****							
R208	1-247-838-00	CARBON	2K	5%	1/4W								
R209	1-249-411-11	CARBON	330	5%	1/4W	*	A-4724-391-A	MD DISPLAY BOARD, COMPLETE					
R210	1-249-417-11	CARBON	1K	5%	1/4W	*****							
R211	1-249-417-11	CARBON	1K	5%	1/4W	*	4-213-361-01	HOLDER (FL)					
R213	1-249-419-11	CARBON	1.5K	5%	1/4W	*	4-955-901-01	CUSHION (FL)					

MD DISPLAY

MD JOG

Ref. No.	Part No.	Description	Remark			
< CAPACITOR >						
C801	1-162-282-31	CERAMIC	100PF	10%	50V	
C802	1-162-282-31	CERAMIC	100PF	10%	50V	
C803	1-162-282-31	CERAMIC	100PF	10%	50V	
C804	1-162-282-31	CERAMIC	100PF	10%	50V	
C805	1-162-282-31	CERAMIC	100PF	10%	50V	
C806	1-162-282-31	CERAMIC	100PF	10%	50V	
C807	1-162-282-31	CERAMIC	100PF	10%	50V	
C808	1-162-282-31	CERAMIC	100PF	10%	50V	
C809	1-162-282-31	CERAMIC	100PF	10%	50V	
C810	1-162-282-31	CERAMIC	100PF	10%	50V	
C811	1-162-282-31	CERAMIC	100PF	10%	50V	
C812	1-162-282-31	CERAMIC	100PF	10%	50V	
C813	1-162-282-31	CERAMIC	100PF	10%	50V	
C814	1-162-282-31	CERAMIC	100PF	10%	50V	
C815	1-162-282-31	CERAMIC	100PF	10%	50V	
C816	1-162-215-31	CERAMIC	47PF	5%	50V	
C817	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C818	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C819	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C820	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C821	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C825	1-124-584-00	ELECT	100uF	20%	10V	
C826	1-162-306-11	CERAMIC	0.01uF	20%	16V	
C827	1-124-248-00	ELECT	22uF	20%	35V	
C828	1-164-159-11	CERAMIC	0.1uF		50V	
C829	1-164-159-11	CERAMIC	0.1uF		50V	
C830	1-164-159-11	CERAMIC	0.1uF		50V	
C831	1-136-173-00	FILM	0.47uF	5%	50V	
C832	1-136-173-00	FILM	0.47uF	5%	50V	
< CONNECTOR >						
* CN801	1-568-946-11	PIN, CONNECTOR 8P				
< FLUORESCENT INDICATER >						
FL801	1-517-819-11	INDICATOR TUBE, FLUORESCENT				
< IC >						
IC801	8-759-426-98	IC MSM9202-02GS-K				
< COIL >						
L801	1-410-521-11	INDUCTOR	100uH			
L802	1-410-521-11	INDUCTOR	100uH			
< TRANSISTOR >						
Q801	8-729-620-05	TRANSISTOR 2SC2603-EF				
< RESISTOR >						
R801	1-249-429-11	CARBON	10K	5%	1/4W	
R802	1-247-842-11	CARBON	3K	5%	1/4W	
R803	1-247-807-31	CARBON	100	5%	1/4W	
R804	1-247-807-31	CARBON	100	5%	1/4W	
R805	1-247-807-31	CARBON	100	5%	1/4W	
R806	1-247-807-31	CARBON	100	5%	1/4W	
R813	1-249-417-11	CARBON	1K	5%	1/4W	

Ref. No.	Part No.	Description	Remark			
< SWITCH >						
S802	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)				

*	A-4724-394-A	MD JOG BOARD, COMPLETE	*****			
< CAPACITOR >						
C822	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C823	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C824	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C833	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C834	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C835	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C836	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C837	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C838	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C839	1-124-584-00	ELECT	100uF	20%	10V	
C850	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
C851	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	
< CONNECTOR >						
* CN802	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P				
CN804	1-770-171-11	CONNECTOR, FFC/FPC 13P				
< LED >						
D801	8-719-056-13	LED SML79423C-TP15 (MD1)				
D802	8-719-056-13	LED SML79423C-TP15 (MD2)				
D803	8-719-056-13	LED SML79423C-TP15 (MD3)				
D804	8-719-056-13	LED SML79423C-TP15 (MD4)				
D805	8-719-056-13	LED SML79423C-TP15 (MD5)				
D806	8-719-812-44	LED TLO124 (MD WALKMAN SYNC)				
D807	8-719-812-44	LED TLO124 (MD WALKMAN SYNC)				
D808	8-719-069-45	LED SELU5E23C-TP15				
(MD SLOT ILLUMINATION)						
< IC >						
IC802	8-759-448-24	IC NJU3718G(TE2)				
< TRANSISTOR >						
Q802	8-729-402-42	TRANSISTOR UN5213				
Q803	8-729-015-76	TRANSISTOR UN5211				
Q804	8-729-015-74	TRANSISTOR UN5111				
< RESISTOR >						
R807	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R808	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R809	1-216-025-91	RES,CHIP	100	5%	1/10W	
R810	1-216-025-91	RES,CHIP	100	5%	1/10W	
R811	1-216-025-91	RES,CHIP	100	5%	1/10W	
R812	1-216-295-91	SHORT	0			
R814	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R815	1-216-025-91	RES,CHIP	100	5%	1/10W	
R817	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R823	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R824	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R825	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	

MD JOG

MD SW

MECH RELAY

MICROCOMPUTER

Ref. No.	Part No.	Description	Remark
R833	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R834	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R835	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R836	1-216-073-00	METAL CHIP	10K 5% 1/10W
R837	1-216-085-00	METAL CHIP	33K 5% 1/10W
R861	1-216-033-00	METAL CHIP	220 5% 1/10W
R862	1-216-033-00	METAL CHIP	220 5% 1/10W
R863	1-216-033-00	METAL CHIP	220 5% 1/10W
R864	1-216-033-00	METAL CHIP	220 5% 1/10W
R865	1-216-033-00	METAL CHIP	220 5% 1/10W
R866	1-216-029-00	METAL CHIP	150 5% 1/10W
R867	1-216-029-00	METAL CHIP	150 5% 1/10W
R868	1-216-029-00	METAL CHIP	150 5% 1/10W
R869	1-216-029-00	METAL CHIP	150 5% 1/10W
R870	1-216-029-00	METAL CHIP	150 5% 1/10W
R871	1-216-037-00	METAL CHIP	330 5% 1/10W
R872	1-216-037-00	METAL CHIP	330 5% 1/10W
R873	1-216-025-91	RES,CHIP	100 5% 1/10W
< SWITCH/ROTARY ENCODER >			
S801	1-473-480-11	ENCODER, ROTARY (I<<<<=>>>>I)	
S803	1-762-875-21	SWITCH, KEYBOARD (△(MD))	
S804	1-762-875-21	SWITCH, KEYBOARD (REC MODE)	
S805	1-762-875-21	SWITCH, KEYBOARD (REC)	
S806	1-762-875-21	SWITCH, KEYBOARD (MD WALKMAN SYNC)	
S807	1-762-875-21	SWITCH, KEYBOARD (MD1)	
S808	1-762-875-21	SWITCH, KEYBOARD (MD2)	
S809	1-762-875-21	SWITCH, KEYBOARD (MD3)	
S810	1-762-875-21	SWITCH, KEYBOARD (MD4)	
S811	1-762-875-21	SWITCH, KEYBOARD (MD5)	
S812	1-762-875-21	SWITCH, KEYBOARD (DISC SKIP)	

*	A-4724-397-A	MD SW BOARD, COMPLETE	*****
< CONNECTOR >			
CN601	1-750-498-11	PIN, CONNECTOR (PC BOARD) 4P	
< RESISTOR >			
R603	1-216-085-00	METAL CHIP	33K 5% 1/10W
R605	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R607	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R609	1-216-073-00	METAL CHIP	10K 5% 1/10W
R610	1-216-065-00	RES,CHIP	4.7K 5% 1/10W
R611	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R612	1-216-085-00	METAL CHIP	33K 5% 1/10W
R613	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R614	1-216-073-00	METAL CHIP	10K 5% 1/10W
R620	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R622	1-216-295-00	SHORT	0
< SWITCH >			
S602	1-771-544-11	SWITCH, TACTILE (1/ALL)	
S603	1-771-544-11	SWITCH, TACTILE (PLAY MODE)	
S604	1-771-544-11	SWITCH, TACTILE (REPEAT)	
S606	1-771-544-11	SWITCH, TACTILE (▷)	
S607	1-771-544-11	SWITCH, TACTILE (□)	

Ref. No.	Part No.	Description	Remark
S608	1-771-544-11	SWITCH, TACTILE (◀◀)	
S609	1-771-544-11	SWITCH, TACTILE (▶▶)	
S610	1-771-544-11	SWITCH, TACTILE (NAME EDIT)	
S611	1-771-544-11	SWITCH, TACTILE (MENU/NO)	
S612	1-771-544-11	SWITCH, TACTILE (ENTER/YES)	
S613	1-771-544-11	SWITCH, TACTILE (CLEAR)	

*	1-671-468-11	MECH RELAY BOARD	*****
< CAPACITOR >			
C550	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V
C551	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V
C553	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C554	1-163-038-00	CERAMIC CHIP	0.1uF 25V
< CONNECTOR >			
CN550	1-784-335-11	CONNECTOR (FFC) 21P	
CN551	1-695-368-31	CONNECTOR, FFC/FPC 7P	
CN552	1-695-374-31	CONNECTOR, FFC/FPC 13P	
< IC >			
IC550	8-759-040-83	IC BA6287F	
IC551	8-759-040-83	IC BA6287F	

*	A-4724-482-A	MICROCOMPUTER BOARD, COMPLETE	*****
< CAPACITOR >			
C300	1-104-665-11	ELECT	100uF 20% 10V
C301	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C302	1-126-967-11	ELECT	47uF 20% 50V
C303	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C304	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C305	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C306	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C307	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C308	1-104-665-11	ELECT	100uF 20% 10V
C309	1-107-791-11	CAPACITOR	0.33F 0 5.5V
C310	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C311	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C341	1-104-665-11	ELECT	100uF 20% 10V
C342	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C343	1-126-925-11	ELECT	470uF 20% 10V
C344	1-126-925-11	ELECT	470uF 20% 10V
C345	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C346	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C347	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C348	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C349	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C351	1-126-925-11	ELECT	470uF 20% 10V
C352	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C353	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C354	1-163-117-00	CERAMIC CHIP	100PF 5% 50V

MICROCOMPUTER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< CONNECTOR >							
CN300	1-784-741-11	CONNECTOR, FFC 19P		R314	1-216-065-00	RES,CHIP 4.7K 5%	1/10W
CN301	1-784-739-11	CONNECTOR, FFC 17P		R315	1-216-065-00	RES,CHIP 4.7K 5%	1/10W
CN303	1-784-743-11	CONNECTOR, FFC 21P		R316	1-216-073-00	METAL CHIP 10K 5%	1/10W
* CN304	1-568-948-11	PIN, CONNECTOR 10P		R317	1-216-073-00	METAL CHIP 10K 5%	1/10W
* CN305	1-568-946-11	PIN, CONNECTOR 8P		R318	1-216-025-00	RES,CHIP 100 5%	1/10W
* CN306	1-568-946-11	PIN, CONNECTOR 8P		R327	1-216-097-00	RES,CHIP 100K 5%	1/10W
< DIODE >				R331	1-216-097-00	RES,CHIP 100K 5%	1/10W
D222	8-719-210-33	DIODE EC10DS2		R332	1-216-097-00	RES,CHIP 100K 5%	1/10W
D223	8-719-210-33	DIODE EC10DS2		R333	1-216-097-00	RES,CHIP 100K 5%	1/10W
D301	8-719-210-33	DIODE EC10DS2		R341	1-216-025-00	RES,CHIP 100 5%	1/10W
D302	8-719-210-33	DIODE EC10DS2		R342	1-216-025-00	RES,CHIP 100 5%	1/10W
D303	8-719-988-62	DIODE 1SS355		R343	1-216-025-00	RES,CHIP 100 5%	1/10W
D304	8-719-988-62	DIODE 1SS355		R344	1-216-025-00	RES,CHIP 100 5%	1/10W
D305	8-719-988-62	DIODE 1SS355		R345	1-216-025-00	RES,CHIP 100 5%	1/10W
D307	8-719-988-62	DIODE 1SS355		R346	1-216-025-00	RES,CHIP 100 5%	1/10W
D309	8-719-988-62	DIODE 1SS355		R347	1-216-025-00	RES,CHIP 100 5%	1/10W
D310	8-719-988-62	DIODE 1SS355		R348	1-216-025-00	RES,CHIP 100 5%	1/10W
D341	8-719-210-33	DIODE EC10DS2		R349	1-216-025-00	RES,CHIP 100 5%	1/10W
< FERRITE BEAD >				R350	1-216-049-11	RES,CHIP 1K 5%	1/10W
FB300	1-410-396-41	FERRITE 0.45uH		R351	1-216-025-00	RES,CHIP 100 5%	1/10W
FB341	1-410-396-41	FERRITE 0.45uH		R352	1-216-025-00	RES,CHIP 100 5%	1/10W
< IC >				R353	1-216-025-00	RES,CHIP 100 5%	1/10W
IC300	8-759-577-07	IC uPD784215AYGF-502-3BA		R354	1-216-025-00	RES,CHIP 100 5%	1/10W
IC301	8-759-165-82	IC PST600E-T		R355	1-216-025-00	RES,CHIP 100 5%	1/10W
IC302	8-759-557-09	IC M5M5256DFP-70XL-TR7		R356	1-216-025-00	RES,CHIP 100 5%	1/10W
IC304	8-759-035-87	IC SC7S00F		R357	1-216-025-00	RES,CHIP 100 5%	1/10W
< SHORT >				R358	1-216-025-00	RES,CHIP 100 5%	1/10W
JW300	1-216-295-00	SHORT 0		R359	1-216-025-00	RES,CHIP 100 5%	1/10W
JW302	1-216-295-00	SHORT 0		R360	1-216-025-00	RES,CHIP 100 5%	1/10W
< COIL >				R361	1-216-025-00	RES,CHIP 100 5%	1/10W
L301	1-410-482-31	INDUCTOR 100uH		R362	1-216-025-00	RES,CHIP 100 5%	1/10W
L341	1-408-397-00	INDUCTOR 1uH		R363	1-216-073-00	METAL CHIP 10K 5%	1/10W
L342	1-410-682-31	INDUCTOR 470uH		R364	1-216-073-00	METAL CHIP 10K 5%	1/10W
< TRANSISTOR >				R365	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q300	8-729-421-19	TRANSISTOR UN2213		R366	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q301	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R367	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q341	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R368	1-216-073-00	METAL CHIP 10K 5%	1/10W
< RESISTOR >				R369	1-216-073-00	METAL CHIP 10K 5%	1/10W
R300	1-216-065-00	RES,CHIP 4.7K 5%	1/10W	R370	1-216-073-00	METAL CHIP 10K 5%	1/10W
R301	1-216-073-00	METAL CHIP 10K 5%	1/10W	R371	1-216-073-00	METAL CHIP 10K 5%	1/10W
R302	1-216-065-00	RES,CHIP 4.7K 5%	1/10W	R372	1-216-025-00	RES,CHIP 100 5%	1/10W
R303	1-216-089-00	RES,CHIP 47K 5%	1/10W	R373	1-216-025-00	RES,CHIP 100 5%	1/10W
R304	1-216-089-00	RES,CHIP 47K 5%	1/10W	R374	1-216-025-00	RES,CHIP 100 5%	1/10W
R305	1-216-065-00	RES,CHIP 4.7K 5%	1/10W	R375	1-216-073-00	METAL CHIP 10K 5%	1/10W
R307	1-216-049-11	RES,CHIP 1K 5%	1/10W	R376	1-216-295-00	SHORT 0	
R311	1-216-017-00	RES,CHIP 47 5%	1/10W	R381	1-216-025-00	RES,CHIP 100 5%	1/10W
R312	1-216-017-00	RES,CHIP 47 5%	1/10W	R382	1-216-025-00	RES,CHIP 100 5%	1/10W
R313	1-216-025-00	RES,CHIP 100 5%	1/10W	R383	1-216-025-00	RES,CHIP 100 5%	1/10W
				R384	1-216-025-00	RES,CHIP 100 5%	1/10W
				R385	1-216-025-00	RES,CHIP 100 5%	1/10W
				R386	1-216-025-00	RES,CHIP 100 5%	1/10W
				R387	1-216-025-00	RES,CHIP 100 5%	1/10W
				R388	1-216-025-00	RES,CHIP 100 5%	1/10W
				R389	1-216-025-00	RES,CHIP 100 5%	1/10W
				R390	1-216-025-00	RES,CHIP 100 5%	1/10W
				R391	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
				R392	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
				R393	1-216-061-00	METAL CHIP 3.3K 5%	1/10W

MICROCOMPUTER

OUT SW

RELAY

SENSOR

Ref. No.	Part No.	Description			Remark
R394	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R395	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
< VIBRATOR >					
X300	1-579-352-11	VIBRATOR, CERAMIC (12.5MHz)			

*	1-671-503-11	OUT SW BOARD	*****		
< CONNECTOR >					
* CN709	1-568-943-11	PIN, CONNECTOR 5P			
CN715	1-506-481-11	PIN, CONNECTOR 2P			
< SWITCH >					
S701	1-771-218-11	SWITCH, MICRO (MID OUT)			
S702	1-771-218-11	SWITCH, MICRO (LID)			
S708	1-771-218-11	SWITCH, MICRO (OUT)			

*	A-4724-392-A	RELAY BOARD, COMPLETE	*****		
< CAPACITOR >					
C420	1-162-294-31	CERAMIC	0.001uF	10%	50V
C421	1-126-157-11	ELECT	10uF	20%	16V
C422	1-126-157-11	ELECT	10uF	20%	16V
C451	1-124-252-00	ELECT	0.33uF	20%	50V
C452	1-164-159-11	CERAMIC	0.1uF		50V
C453	1-124-584-00	ELECT	100uF	20%	10V
C454	1-162-294-31	CERAMIC	0.001uF	10%	50V
C455	1-126-176-11	ELECT	220uF	20%	10V
C456	1-126-176-11	ELECT	220uF	20%	10V
C457	1-162-306-11	CERAMIC	0.01uF	20%	16V
C458	1-124-589-11	ELECT	47uF	20%	16V
C459	1-126-176-11	ELECT	220uF	20%	10V
C460	1-162-306-11	CERAMIC	0.01uF	20%	16V
C461	1-162-294-31	CERAMIC	0.001uF	10%	50V
C462	1-162-306-11	CERAMIC	0.01uF	20%	16V
C463	1-162-306-11	CERAMIC	0.01uF	20%	16V
C464	1-162-306-11	CERAMIC	0.01uF	20%	16V
C465	1-162-306-11	CERAMIC	0.01uF	20%	16V
C466	1-126-176-11	ELECT	220uF	20%	10V
C467	1-164-159-11	CERAMIC	0.1uF		50V
C468	1-164-159-11	CERAMIC	0.1uF		50V
C469	1-136-177-00	FILM	1uF	5%	50V
C470	1-162-294-31	CERAMIC	0.001uF	10%	50V
C471	1-126-157-11	ELECT	10uF	20%	16V
C472	1-126-157-11	ELECT	10uF	20%	16V
C473	1-164-159-11	CERAMIC	0.1uF		50V
C474	1-162-294-31	CERAMIC	0.001uF	10%	50V
C475	1-164-159-11	CERAMIC	0.1uF		50V
C476	1-162-199-31	CERAMIC	10PF	5%	50V
C477	1-162-294-31	CERAMIC	0.001uF	10%	50V
C479	1-164-159-11	CERAMIC	0.1uF		50V
C480	1-164-159-11	CERAMIC	0.1uF		50V
C481	1-162-282-31	CERAMIC	100PF	10%	50V

Ref. No.	Part No.	Description	Remark			
< CONNECTOR >						
CN401	1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P				
CN451	1-784-745-11	CONNECTOR, FFC 23P				
CN453	1-779-203-11	CONNECTOR, FFCC/FPC 13P				
CN454	1-779-203-11	CONNECTOR, FFCC/FPC 13P				
* CN455	1-766-953-11	CONNECTOR, BOARD TO BOARD 15P				
< GROUND TERMINAL >						
EP401	1-537-771-21	TERMINAL BOARD, GROUND				
< COIL>						
FB401	1-410-396-41	INDUCTOR	0.45uH			
< PHOTO COUPLER/IC >						
IC401	8-749-015-19	PHOTO COUPLER ON3131-SA.S0				
IC402	8-749-015-19	PHOTO COUPLER ON3131-SA.S0				
IC451	8-759-481-02	IC M62016L				
< COIL >						
L451	1-408-117-00	INDUCTOR	10uH			
L452	1-408-117-00	INDUCTOR	10uH			
< TRANSISTOR >						
Q400	8-729-900-80	TRANSISTOR	DTC114ES			
Q401	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q403	8-729-900-80	TRANSISTOR	DTC114ES			
Q404	8-729-119-78	TRANSISTOR	2SC403SP-51			
< RESISTOR >						
R403	1-249-417-11	CARBON	1K	5%	1/4W	
R404	1-247-807-31	CARBON	100	5%	1/4W	
R406	1-249-404-00	CARBON	82	5%	1/4W	
R407	1-249-441-11	CARBON	100K	5%	1/4W	
R409	1-249-408-11	CARBON	180	5%	1/4W	
R410	1-249-429-11	CARBON	10K	5%	1/4W	
R411	1-249-429-11	CARBON	10K	5%	1/4W	
R412	1-249-409-11	CARBON	220	5%	1/4W	
R413	1-249-409-11	CARBON	220	5%	1/4W	
R415	1-249-425-11	CARBON	4.7K	5%	1/4W	
R420	1-249-395-11	CARBON	15	5%	1/4W	
R451	1-249-429-11	CARBON	10K	5%	1/4W	
R463	1-249-421-11	CARBON	2.2K	5%	1/4W	
R464	1-249-421-11	CARBON	2.2K	5%	1/4W	
R465	1-249-421-11	CARBON	2.2K	5%	1/4W	
R470	1-249-395-11	CARBON	15	5%	1/4W	
R472	1-249-393-11	CARBON	10	5%	1/4W	
R473	1-249-413-11	CARBON	470	5%	1/4W	

* 1-671-504-11 SENSOR BOARD

< CONNECTOR >

CN708 1-506-481-11 PIN, CONNECTOR 2P

SENSOR

SENSOR 2

SW

WM

Ref. No.	Part No.	Description	Remark		
< LED >					
D704	8-719-055-84	LED GL-528VS1 (DISC IN DETECT SENSOR)			
< RESISTOR >					
R711	1-249-415-11	CARBON	680	5%	1/4W

*	1-671-789-11	SENSOR 2 BOARD	*****		
	4-964-461-02	HOLDER (SENSOR)			
< TRANSISTOR >					
Q703	8-729-926-31	PHOTO TRANSISTOR PT483F1S			

*	1-671-467-11	SW BOARD	*****		
< CONNECTOR >					
* CN206	1-750-494-31	PIN, CONNECTOR (PC BOARD) 6P			
< SWITCH >					
S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT)			
S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)			
S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)			

*	1-671-822-11	WM BOARD	*****		
< CAPACITOR >					
C1	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C2	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C3	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C4	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
< CONNECTOR >					
CL1	1-690-880-81	LEAD (WITH CONNECTOR)			
CN1	1-778-529-11	PIN, CONNECTOR (PC BOARD) 7P			
< JACK >					
J1	1-785-382-21	JACK, MINIATURE(+ CONNECTOR)4P (MD WALKMAN LINK)			
< SHORT >					
R1	1-216-295-00	SHORT	0		
R2	1-216-295-00	SHORT	0		

MISCELLANEOUS					

3	1-790-267-11	WIRE (FLAT TYPE) (19 CORE)			
5	1-773-181-11	WIRE (FLAT TYPE) (23 CORE)			
6	1-790-263-11	WIRE (FLAT TYPE) (13 CORE) (130mm)			
73	1-790-265-12	WIRE (FLAT TYPE) (11 CORE)			
79	1-790-264-11	WIRE (FLAT TYPE) (13 CORE) (179mm)			
103	1-790-268-11	WIRE (FLAT TYPE) (21 CORE)			

Ref. No.	Part No.	Description	Remark
105	1-790-266-11	WIRE (FLAT TYPE) (17 CORE)	
△ 253	A-3328-818-A	OPTICAL PICK-UP (KSM-213BFN) (for CD)	
257	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
305	1-790-121-01	WIRE (FLAT TYPE) (21 CORE)	
310	1-782-910-11	WIRE (FLAT TYPE) (7 CORE)	
364	1-667-955-11	OP RELAY FLEXIBLE BOARD	
369	1-782-909-11	WIRE (FLAT TYPE) (13 CORE)	
403	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1RP (for MD)	
404	1-664-039-11	OP TRANSLATION FLEXIBLE BOARD	
HR901	1-500-489-14	HEAD, OVER WRITE	
M4	X-4949-160-1	MOTOR (HEAD) ASSY (OVER WRITE HEAD UP/DOWN)	
M102	X-2625-769-1	SLED MOTOR (WITH GEAR) ASSY	
M571	1-698-874-11	MOTOR, DC (ELEVATOR UP/DOWN)	
M572	1-698-874-11	MOTOR, DC (LOADING)	
M681	A-4672-241-A	MOTOR ASSY, SPINDLE	
M682	A-4672-240-A	MOTOR ASSY, SLED	
M701	X-4950-341-1	MOTOR (CLAMP) ASSY (ELEVATOR UP/DOWN)	
M702	X-4950-342-1	MOTOR (LOADING) ASSY	
S572	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING IN)	
S573	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING OUT)	
S707	1-418-045-01	ENCODER, ROTARY (DISC TRY ADDRESS DETECT)	
SS202	1-569-972-21	SOCKET, SHORT 2P	

HARDWARE LIST			

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 TT (B)	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#4	7-685-853-04	SCREW +BVTT 2X6 (S)	
#5	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#6	7-685-861-01	SCREW +BVTT 2.6X5 (S)	
#7	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#8	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
#9	7-624-102-04	STOP RING 1.5, TYPE -E	
#10	7-624-106-04	STOP RING 3.0, TYPE -E	
#11	7-685-851-09	SCREW +BVTT 2X4 (S)	
#12	7-621-772-10	SCREW +B 2X4	
#13	7-627-000-00	SCREW, PRECISION +P1.7X2.2 TYPE3	
#14	7-627-852-08	SCREW, PRECISION +P 1.7X2.5	
#15	7-627-852-28	+P 1.7X3	

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.